THE INDUSTRY'S RECOGNIZED AUTHORITY

ROCK PRODUCTS

LARGEST PRODUCER CIRCULATION IN THE HISTORY OF THE FIELD

Safety programs—

here's one that really works!

see page 72

Control panel at Marquette Cement Manufacturing Co.'s Milwaukee plant

MAY 1957

WILLIAMS *heavy duty* HAMMER MILLS

- **Crushes, Grinds, Shreds To Finished Size In One Operation**
- **Reduces Production Costs Up To 50%**
- **Saves Up To 75% On Equipment Cost**

Williams No. 60 GA Mill with heavy duty steel plate frame. Cover has been opened to show heavy duty manganese steel liners, breaker plates, grate bars and hammers.

Whether your size reduction job involves crushing, grinding or shredding—whether the material is mineral, chemical, vegetable or animal—Williams has a hammer mill designed to *do it from start to finish in a single operation*. More uniform product, increased output, plus savings in time and labor can *cut production costs as much as half!*

Extra primary and secondary crushers are seldom required with a Williams—no extra drives or conveyors, no costly foundations or buildings for additional crushers are necessary. Expensive maintenance, replacement parts, excessive downtime and labor are reduced to a minimum.

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Oldest and Largest Manufacturers of Hammer Mills in the World

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FROM TRANSFER HOUSE, material is carried on 36-in. inclined conveyor to ship's trimmer spout. A continuous weigh-meter on the conveyor keeps count of tonnage.

SULPHUR IS DISCHARGED from transfer conveyor into revolving ship trimmer which distributes load evenly throughout hold. Capacity of system is 550 tph.

Here's how LINK-BELT adds significant savings to the basic economies of belt conveyors

CONTINUOUS operation, large capacity, flexibility—these are just a few of the advantages belt conveyors offer. And when they're supplied by Link-Belt, you enjoy additional benefits through unbiased choice of components and vast engineering experience.

Link-Belt equipment includes a complete line of idlers, trippers, drives, terminal machinery and related items. Qualified by scores of installations in every industry, Link-Belt can recommend the most practical combination for your job . . . with all elements having correctly rated capacities.

For full details on how to achieve lowest per-ton handling costs, call your Link-Belt representative.

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B.F.Goodrich report:

7,000-ton rain of rocks

B. F. Goodrich improvements in rubber brought extra savings

Problem: Bang! And tons of sharp rock will thunder from that freight car, crash down into a metal chute. OK for the rock, but hard on steel. With 7,000 tons needed every day to build a powerhouse, there's no time to wait while steel chutes are repaired.

What was done: To avoid costly delays, a B.F.Goodrich distributor suggested lining the metal chute with a rubber, called Armorite, specially compounded to stand this sort of a beating. This rubber is soft enough to *give* under the beating it gets, yet so tough that it's even used in some places to carry broken glass.

Savings: This B.F.Goodrich rubber lining had stood up under a daily avalanche of rocks for four months when the picture was taken, is expected to last another year. No repairs, no delays of any kind.

Extra benefits: B.F.Goodrich Armorite is also being used in dozens of other places, here on the St. Lawrence Seaway job. It has given a wire screen sifter five times longer life by protecting it from falling rock. As a belt scraper, it lasts ten times longer than steel. It is also used as a rubber skirting in a chute, absorbing the wear and tear of rocks being dropped on a belt.

Where to buy: Your B.F.Goodrich distributor has the exact specifications of the Armorite described here. And, as a factory-trained specialist in rubber products, he *can* answer your questions about *all* the rubber products B.F.Goodrich makes for industry. *B.F.Goodrich Industrial Products Co., Dept. M-937, Akron 18, Ohio.*

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Wherever excessive heat or dust is present in any one of our industries, it has caused serious personnel problems. Various solutions have been presented but until the introduction of a garment coated with a thin layer of aluminum foil, most ideas were impractical from one standpoint or another. Now, in an exclusive article, here is the story on these aluminized garments. **See page 78**

Research—

How efficient is a grinding mill? Research has finally been able to help you answer that question by developing a means of checking their relative efficiencies. **See page 86**

Prestressed Concrete—

The continuing big news in the concrete field is the use of prestressed concrete. Here is a thoroughgoing study of a modern, progressive prestressed plant. **See page 175**

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MAY 1957

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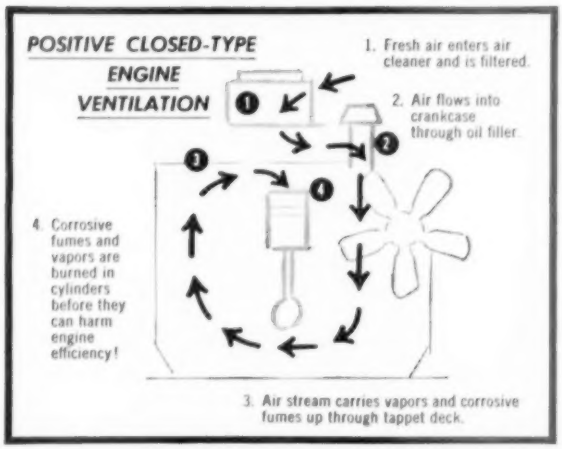
"CLEAN LIVING" GIVES A CHEVY ENGINE LONGER LIFE!

...more evidence that Chevrolet Task-Force trucks are engineered better and built better for bigger savings!

This drawing shows, roughly, one of the ways in which Chevrolet truck engines minimize a major cause of wear—dirt! Now consider this additional evidence that Chevy heavy-duty V8's and 6's "live clean" and bring you fleet, dependable power that costs less to use!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1. Fresh air enters air cleaner and is filtered.
2. Air flows into crankcase through oil filler.
3. Air stream carries vapors and corrosive fumes up through tappet deck.
4. Corrosive fumes and vapors are burned in cylinders before they can harm engine efficiency!

Extra filters give extra-clean fuel—Only *clean* fuel reaches the engine—that's one reason you can depend on a Chevrolet truck! All fuel is filtered twice (once in the fuel tank and again in the carburetor) to keep dirt and water from hampering efficient operation. Chevrolet truck V8's *provide* a *third* filter, at the carburetor, for triple protection!

Oil stays clean longer, too—Chevrolet truck V8's and 261-cu.-in. 6's come equipped with modern high-capacity oil filters (V8 filters are of the Full-Flow type). These engines keep *clean* oil flowing to moving parts; parts wear less and last longer because of it!

Even the air is cleaner—Dust and foreign matter in the air an engine "breathes" can reduce engine life by years. Chevrolet minimizes this wear-producing factor by providing big oil-bath air cleaners as *standard equipment* on all truck engines.

These are sound under-the-hood reasons why a Chevrolet truck will *stay* on your job and *save* on your job. There are others, too, including short-stroke V8 design (shortest stroke of any truck V8's!) and 6-cylinder engine design that puts out more power than any other in the field. You'll learn about them all when you visit your Chevrolet dealer. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

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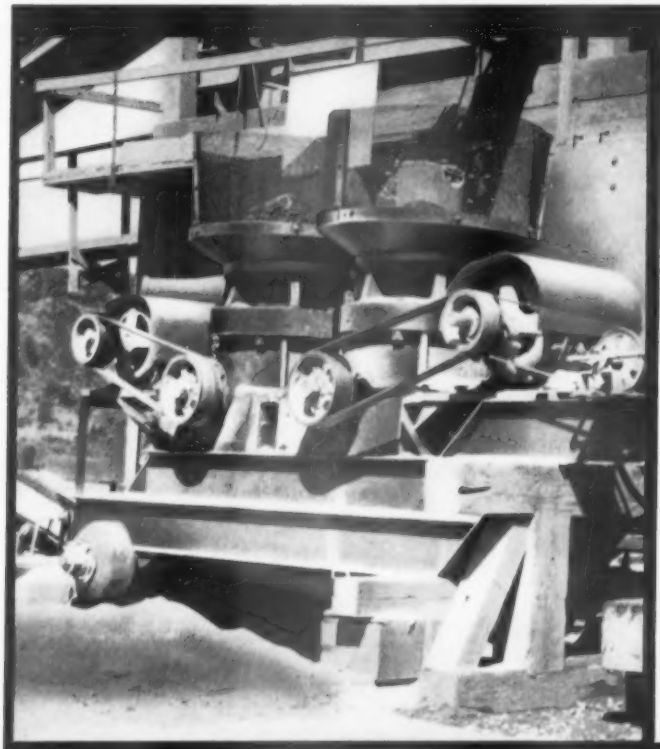
because he gets
something ***EXTRA***



the profit-wise operator

BUYS TRAYLOR REDUCTION CRUSHERS for the same reason

Traylor Reduction Crushers are famous throughout the industry for the extra *production* and extra *profits* they put into rock crushing operations. Traylor-made in ten sizes, with feed openings from 11½" to 22", Traylor Reduction Crushers provide capacities up to 590 tons per hour. For complete specifications write for Traylor Bulletin No. 8112 and Bulletin No. 127.

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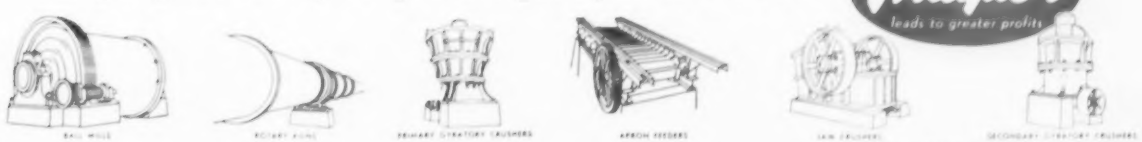

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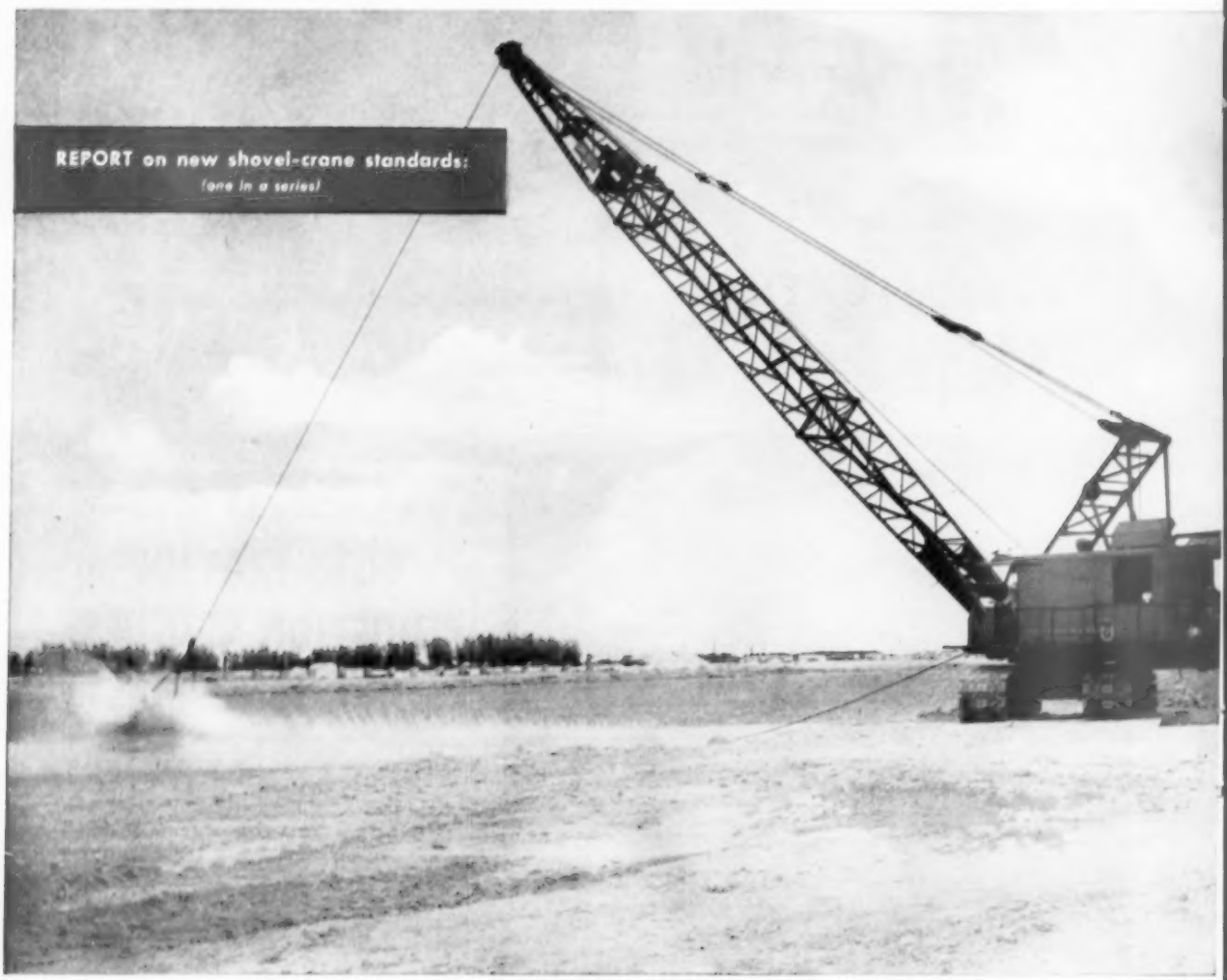


Upping cycles per shift with

Standard on every Link-Belt Speeder, Speed-o-Matic fingertip controls minimize operator fatigue. Response is fast, positive, precise

Exclusive with Link-Belt Speeder, this true power hydraulic control system utilizes oil under pressure. An engine-driven pump supplies pressure to put the machine through its paces at the flick of the operator's wrist. Result—he's not subject to costly end-of-the-shift letdown... he stays fresh, works at high speed *all* shift.

Hydraulic-actuated clutches . . .

engage smoothly, surely . . . eliminate jerk, jump or lag. There's perfect feel of the load for high-speed with safety and accuracy. Self-compensating for heat and normal lining wear, the clutches eliminate frequent stops for clutch adjustments . . . convert downtime into productive time.

Advanced design throughout

When you put a Link-Belt Speeder on your job, you get a machine that's years ahead of the field . . . a machine tops in production profit, unusually low in maintenance and service costs. See how you, too, can set new high standards of shovel-crane performance, earn bigger return on your equipment investment. See or call your Link-Belt Speeder distributor for the complete story or write: Link-Belt Speeder Corporation, Cedar Rapids, Iowa. 14.328

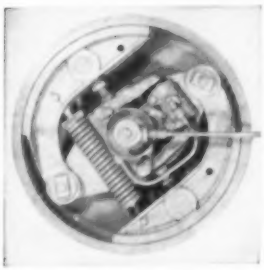
High speed stockpiling

Three yard dragline at left features exclusive Speed-o-Matic controls as standard equipment. System utilizes oil under pressure maintained by engine-driven pump through variable pressure valves, transmits pressure through oil directly to the hydraulic-actuated clutches. Engagement is smooth, precise. Operator has perfect feel of the load for effective work even when the bucket's under water.

More usable horsepower

Size for size, Link-Belt Speeder shovel-cranes utilize more of the engines' available horsepower. This bonus pays off in added power at the bucket teeth, greater line pull plus extra power to swing, hoist and travel. Although it gets more usable power and line pull out of the same engines used in other shovel-cranes, a Link-Belt Speeder remains well within the engine manufacturers' recommended operating speeds.

power hydraulic controls



Self-compensating clutches

Hydraulic-actuated pistons automatically adjust for heat and normal lining wear. Hydraulic pressure is unaffected regardless of the distance the piston moves to engage clutch.

Adds an hour's output per shift! Independent-Swing-and-Travel, available on 11 models, eliminates shifting, saves 20-30 seconds each machine move. All operations are completely independent of each other.

It's time to compare . . . with

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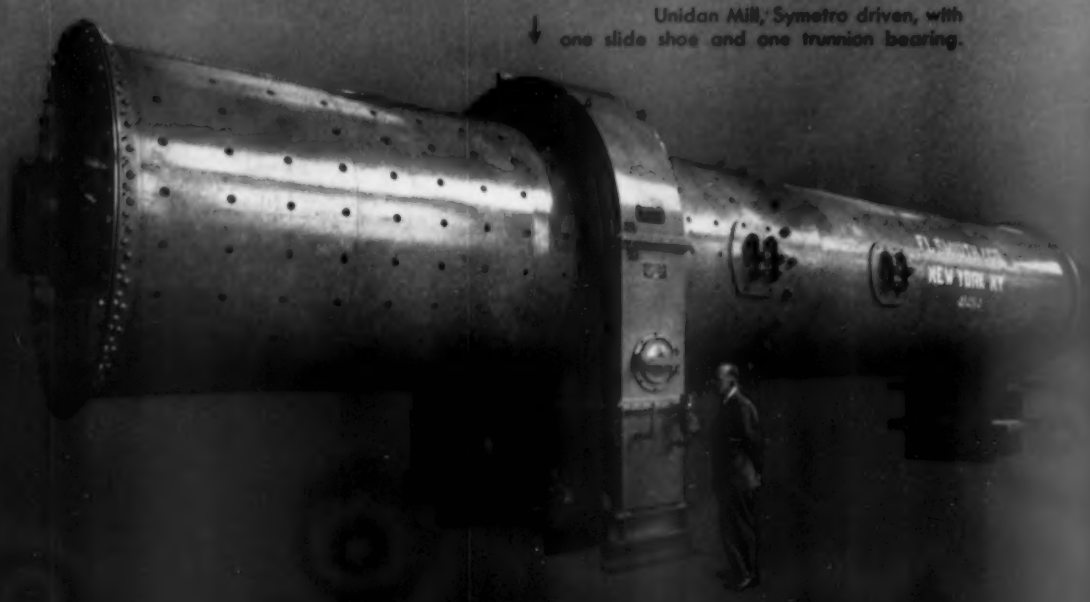
Unidan Mill, Symetro driven, with one slide shoe and one trunnion bearing.



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What's Happening

IN OTHER FIELDS OF INTEREST TO THE ROCK PRODUCTS INDUSTRY

May, 1957

Rubber balls and tin cans were important materials in the construction of a thin shell concrete acoustical ceiling in St. Louis, Mo., said to be the first of its kind to be built anywhere. The technique developed by Harold Koplar, registered architect and president of the Chase Hotel, called for perforation of the concrete ceiling of a new ballroom and exposition hall, and installation of fiber glass materials between ceiling and roof. The 112 x 156-ft. ceiling was poured in three sections. Onto the top of the forms were nailed halves of 2-in. rubber balls. Workmen then fitted the open-bottom ends of 2-in. diam. tin cans over the balls, and these were held down by 2 x 4-ft. planks, wired into position. Concrete was poured, vibrated and set, and wooden forms removed. The rubber balls dropped out of the holes, and when the top ends of the cans were cut out, perforation was complete.

The U. S. Navy is completing a floating concrete drydock containing 145,800 cu. ft. of concrete, weighing 12,800 tons and having a lifting capacity of 4,000 tons. Constructed at a cost of $4 million, the drydock has its own power system and will be capable of ocean trips.

Destined for a South American ore mine was a giant conveyor belt, longest ever made in one piece by B. F. Goodrich Co. Weighing 22½ tons, the belt measured 60 in. wide x 1,000 ft. long. It was made of plies of extra-strength rayon with a nylon filler and was said to be as strong as steel cable.

An incentive to work safely is provided employes of Mississippi Lime Co. of Missouri's Ste. Genevieve plant. At the beginning of this year, the company instituted a "Safety Sweepstakes" in which all production and maintenance personnel take part. Each worker in each of the eight divisions which completes a calendar month without a lost-time injury becomes eligible for a drawing. Prizes of 15 silver dollars are awarded, the number of prizes in each division determined by ratio to the size of the group. In January all divisions qualified, and 27 men took home prize money.

A chimney claimed to be the world's tallest is that of a copper company in Sagazanoseki, Japan. The 570-ft. structure is built of reinforced concrete, with an outside diameter at the base of approximately 42½ ft. and inside diameter at the top of 26 ft. It has proved by experience that it can withstand earthquakes.

A new concrete additive derived from paper mill waste is being introduced by Marathon Corp., Menasha, Wis. The product, Maracon, contains refined lignosulfonate derived from spent sulfite liquor. Its makers claim that addition of Maracon produces a concrete with higher compressive strength, as less water is needed. It is said also to reduce amount of cement required, and to make the concrete more watertight, thus better able to withstand freezing and thawing.

Transporting a rotary kiln the 60 miles upriver from Bangkok to the Ta Luang plant of the Siam Cement Co. presented problems for which F. L. Smidth Co. engineers had a solution. They built the kiln in seven sections, sealed up both ends of each so they would float, and towed them upriver. At the plant, they constructed a series of cofferdams, and by sealing the dams behind the kiln sections, raised them 26 ft. above the river. A manually-operated crane hoisted the sections into position, ready for welding.

Sealed into joints of a concrete sewer tunnel on the St. Lawrence Seaway project are diaphragm-type waterstops of Bakelite vinyl resin. Ribbons of the material are ridged on both sides to give a better grip on the concrete. The tensile strength of the vinyl material is 1,900 psi., and this, with its elastomeric properties, are expected to enable it to withstand movements of masses of concrete without being sheared, keeping the tunnel watertight as the joints open and close in winter and summer.

Since passage of the Federal Aid Highway Act of 1956, construction contract awards have a total estimated cost of $441 million, according to the U. S. Bureau of Public Roads. The total includes $363 million of Federal-aid funds, for construction of 791 miles of the Interstate System.

Albuquerque's new civic auditorium has a thinshell concrete dome roof, 218-ft. diam., supported by a reinforced base ring. The unusual aspect of the construction is that excavation followed erection: the dome was cast on a rounded-off, natural mound of earth. Then the earth was dug away, leaving the dome standing clear in a ring of columns built and backfilled earlier. The method is said to have saved $50,000 in construction costs.

Granular triple-superphosphate is being produced in a one-step process under development by Tennessee Valley Authority. Growing in popularity with farmers because it is easier to apply than powdery material, the granular product generally has been produced by a separate granulation process following a curing process of several weeks. In the new method, granular triple-superphosphate is made in the TVA-developed ammoniator-granulator pilot plant. The ingredients—phosphate rock and phosphoric acid—are mixed in a rotating drum. The rolling action forms the material into pellets, according to Charles H. Young, TVA's manager of chemical engineering.

Using a 45-ton block of concrete to replace the worn-out diesel engine of a locomotive, the Chicago and North Western Railway rescued the unit from the scrap heap. It will be used as a "booster", providing the traction of a second unit in moving freight trains at a fraction of the operating cost of the normal diesels used for that purpose heretofore. In the changeover, the electric traction motors geared to each axle were left intact and electrical changes made. The unit receives its power from the normal diesel to which it is coupled.

A dam to be built in California, described as the world's largest, and a 585-mile aqueduct system will carry water of the Feather River to the southern third of the state. Legislative approval has been given for the initial stages of the work, which is expected to require a total of $1.6 billion. Figures released on the dam say that it will require 14,000,000 cu. yd. of concrete, 3,500,000 more than Grand Coulee Dam. It will rise 730 ft. above the present stream bed, 20 ft. higher than Hoover Dam. Some 1,750,000,000 kw.-h. of electric power will be generated annually.

THE EDITORS

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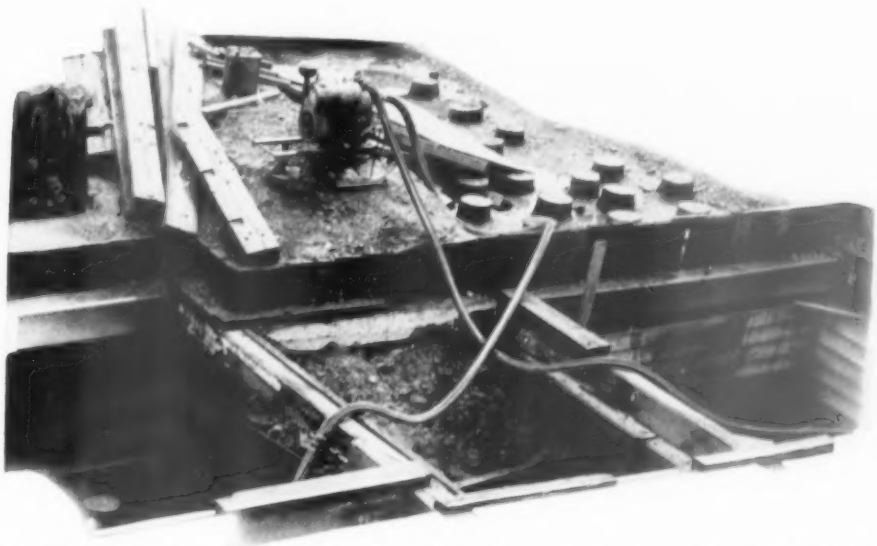

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EDITOR'S PAGE

What's Your Business Outlook?

FROM REPORTS WE SEE, business outlook for the rock products industries is getting better and better. Last October, on this page, we projected excellent future demand for your products—even after the road program has been completed. Now, the picture looks even more rosy—and accents the problems of expansion.

Experts say that chances for a depression this year or next are slim. More likely, the boom will lose some steam in the months ahead, but business will stay at a high level. For the long pull, the dopesters indicate only a pause in charted business progress. Here are factors favorable to your business outlook.

Bertram D. Tallamy, federal highway administrator, reported to Congress last month that the road program will take 16—not 13—years to complete. Volume of products needed for the whole program may not be jumped because of the three extra years, but we like to remember that projections are always on the conservative side. Surely, the revised timing on the program will give you a better chance to plan for annual increases in product supply that will be needed.

The growth in highway activity, says Tallamy, will be a continuous "gentle" rise, without leveling or dropping off, straight through to 1972. Then, it will hit a peak and construction will be finished. What happens to your product demand then? Consider these points:

Population, at the current projected rate of increase, will be about 212 million in 1972. That's 42 million or 25 percent more than now. Lots of houses, streets, sewers, shopping centers, industrial buildings, schools, churches in that market!

Standard of living will be up at least 20 percent by 1972—maybe 30 percent. Average annual increase has been about two percent.

Multiply the two factors together and it means about a 45-percent increase in demand for goods and services. Consumer demand accounts for about two-thirds of all demand in this country. And it will influence your business, too.

Will you be able to supply, 15 years from now, at an average annual rate nearly 50 percent higher than your 1956 rate? It looks like that's the problem to be faced. And it will take a lot of doing, beginning right now.

George C. Lindsay

ROCKY'S NOTES

NATHAN C. ROCKWOOD

Vital Importance of Productive Soils

DURING A PERIOD when there are agricultural product surpluses, year after year, the subject of soil conservation and soil building may not be popular. Yet in the long run, the capacity of our soils to produce healthy plants and animals is just as important, probably more so, as keeping up our atomic defense program. Both men and animals as a matter of evolution are pretty much the products of what they eat, and what they eat is pretty much determined by the kind of soil and climate that form their environment. This is generally acknowledged by breeders of livestock, but not understood by the rank and file of human beings.

There is a book by a famous anthropologist, J. R. de la H. Marett, which is now 20 years old, but still interesting and instructive reading when in a meditative mood. Its title is "Race, Sex and Environment — A Study of Mineral Deficiency in Human Evolution." The author develops theories to account for racial characteristics based on food, locality and climate—that is whether or not there is, or has been in historic time, a deficiency of certain mineral elements, which are known to have vital influence on the endocrine glands, and hence on the metabolism of the human as on the animal body. His theory is that in the evolution of mankind, and the development of racial characteristics, it was not merely a survival of the fittest in competition with one another and the physical world, but also adaptation to the presence or absence in the diet of plentiful supplies of such elements as calcium, phosphorous, iron, sodium, iodine, etc.

Mineral economies. Thus, races or groups whose diet was lacking in calcium, in order to survive, would have to adapt themselves to a calcium economy, where nature would resort to every means to conserve the calcium intake. Elsewhere there might have to be an iodine, or a sodium economy. Each and all of these environments resulted in certain physical and social characteristics. Such observations are well established by breeders of domestic animals, but so far as we know this was the first attempt to correlate such data for the purpose defined in the title of the book. For example, big-boned, big-toothed animals or those with big antlers or horns are characteristic of the high and relatively dry plains or tundra, where there is normally plenty of calcium carbonate and phosphate in the soil and food. The shedding of antlers each year by members of the deer family, for example, is nature's way of getting rid of the surplus calcium in their diets, and the use of these appendages for aggressive or defensive purposes by the animal is more incidental than the reason for their existence.

Don't look now for rugged individuals. Regions of much rainfall tend to become deficient in calcium (or lime) because it readily dissolves and disappears from the surface. Iodine on the other hand is plentiful in the soils of rainy regions because the rain itself, as evaporated sea water, contains iodine. "Lime deficiency is thought to encourage femininity, and iodine shortage to favor foetalization." Translated into modern social tendencies, this means, according to the author, that rugged individualists from the back-country farms and ranches (the "he" men) tend to become effeminate when they crowd into cities, and their intake of calcium is lessened. Of course, it does not mean this happens within the lifetime of an individual, but in the course of evolution of a race or nationality. In other words, there are definite reasons why the city-living descendants of the rugged individualists who wrote and signed our Declaration of Independence and were well "mineralized" from the products of virgin soils, are not living up to their heritage. We are not structurally or intellectually the same as our forebears.

Please turn to page 138

AMSCO® PUMP DELIVERS 150,000 TONS of AGGREGATE

. . . before water end part renewal

Herman Clouse, Superintendent of Lincoln Sand & Gravel Company, tells the facts about his 30-year-old Amsco pump.

This 10-inch pump dredges sand and gravel from two different deposits. One is a 30% sand, 70% gravel mix. The other is about 70% sand, 30% gravel.

Water end parts last three to four months, during which the pump delivers approximately 150,000 tons of aggregate. End parts are replaced after that time, and the parts removed are rebuilt with Amsco welding rod. Then, they're used again before being scrapped. Down time for replacement is only about three hours.

And Mr. Clouse adds that the bearings on this veteran pump have been *replaced only once in the last eight years.*

In 1953, when Lincoln's operations were moved farther out into the lake, a second 10-inch Amsco pump was installed as a booster. Including the extension, the pipeline is now 1800 feet long . . . single stage . . . with a 35 to 38-foot lift.

QUICK FACTS ABOUT AMSCO PUMPS

Water end parts, cast of tough manganese steel and other special alloys, give Amsco pumps extra resistance to the impact and abrasion of aggregate.

Encasing the shaft in the packing area is a heavy, corrosion and abrasion-resistant sleeve. The deep-grooved, two directional thrust ball bearings are *arrerized* to operate smoothly under strain, and to withstand long service.

Standard sizes range from 6" to 20" discharge openings. Larger sizes are also available.

Write for Bulletin No. 1052P which includes specifications and additional information on the Amsco line of pumps.

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AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Ill.

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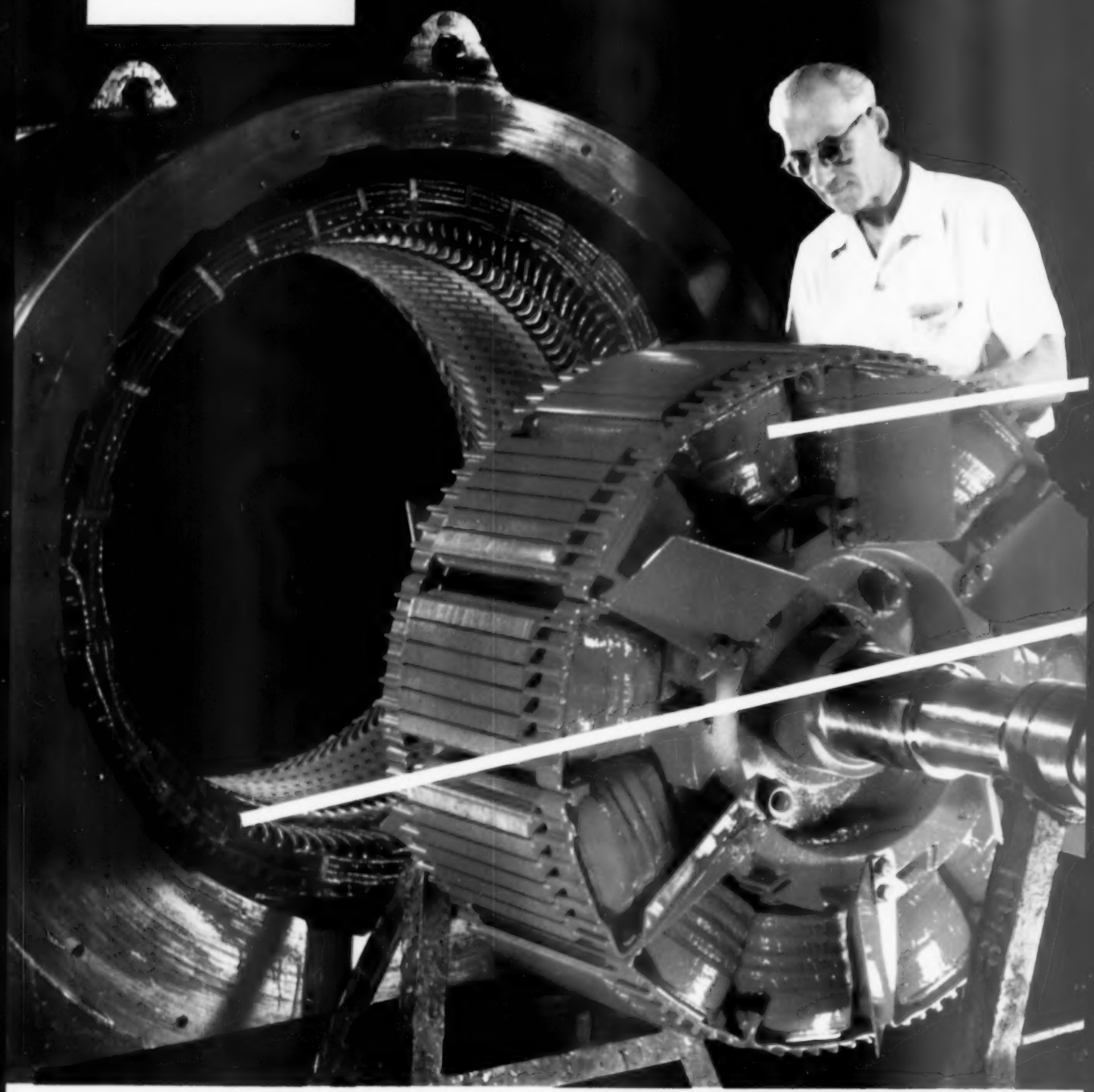

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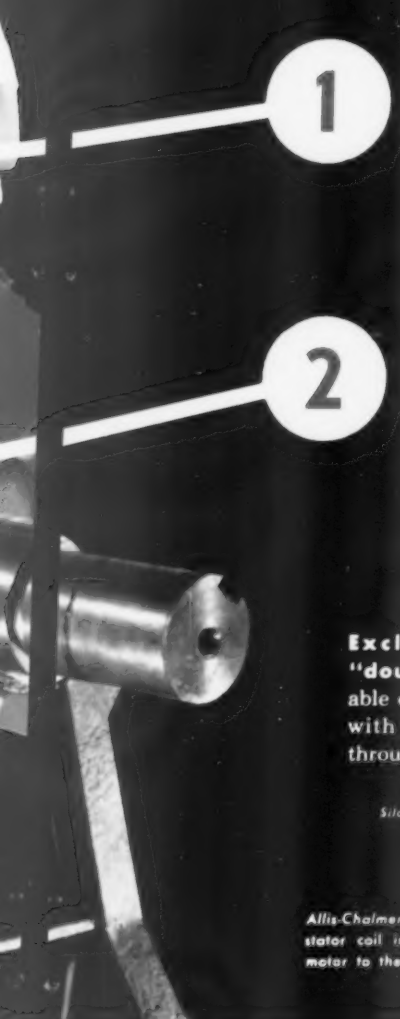

1

Integrated Field Coils are bonded in heat-stabilized resins, enclosed in a resin-impregnated sheath of oriented glass fibers and bond-locked on the pole structure . . . dimensionally stable to withstand heating and thermal shock, vibration and fatigue at elevated temperatures . . . sealed throughout against atmospheric contaminants and fully protected against destructive forces.

2

***Silco-Flex* Insulation** provides a homogeneous, void-free insulating wall of silicone rubber on stator coils. It is unexcelled in life and thermal stability at high temperatures . . . resistant to most chemicals, water, weather . . . outstanding in flexibility and resilience . . . able to withstand abrasion and corona . . . resistant to physical and mechanical forces.

Exclusive Allis-Chalmers "double protection" is available on large electrical machines with operating temperatures through Class B range.

Silco-Flex is an Allis-Chalmers trademark.

For more information on these quality insulation systems contact your nearby A-C office, or write Allis-Chalmers, Power Equipment Division, Milwaukee 1, Wisconsin for Integrated Field Coil Bulletin 05R8525 and *Silco-Flex* Insulation Bulletin 05R8341.

Allis-Chalmers "Double Protection," with integrated field coils and Silco-Flex stator coil insulation, adapts this 600-hp, 2300-volt, 600-rpm synchronous motor to the most severe operating conditions.

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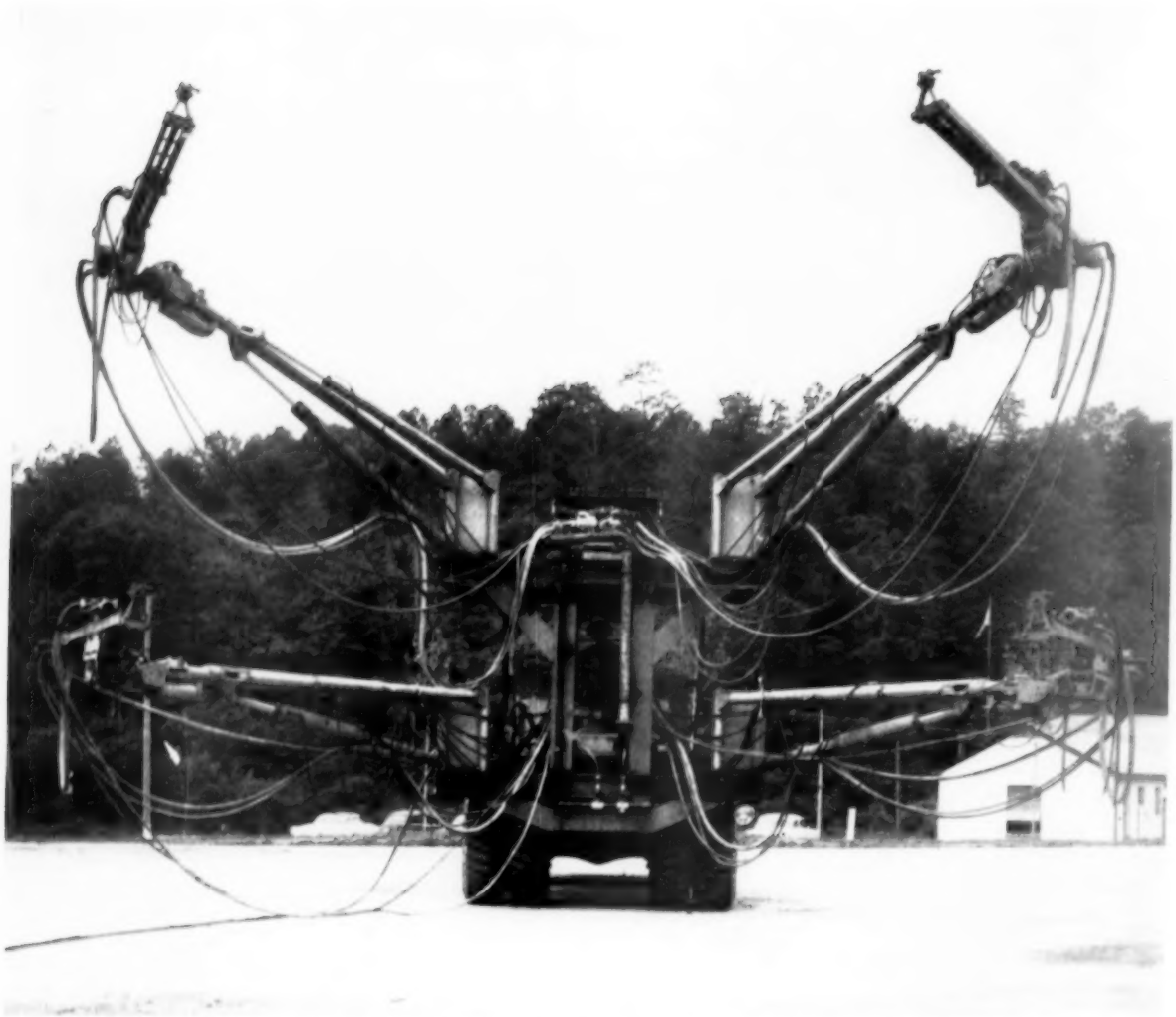

Head-on view of a 4-boom jumbo. Note wide reach of the Gardner-Denver hydraulic booms.

Build your own jumbo with

GARDNER-DENVER COMPONENTS

Tailor your truck, tractor or rail mounted jumbo with Gardner-Denver booms, feeds and drills. You get just what you need for each dollar invested. Gardner-Denver offers a wide selection in:

- **HYDRAULIC BOOMS,** completely automatic and remotely controlled for mounting on your jumbo.
- Manufactured in two sizes and types (tunnel and rugged types), TRIPODS for mounting heavier drifter equipment with the longer chain feed.
- **POWERFUL ROCK DRILLS** in 3-, 3½-, 4 and 4½-inch sizes. Long chain or screw feed mountings.
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- **REMOTE CONTROLS** located at any point along the boom or on the jumbo chassis. With G-D Remote Controls, one operator moves booms into position and controls complete drilling operation without leaving his station.

Gardner-Denver engineers will work with your staff and powderman to design your jumbo to the job.

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How would you decide?

A roundup of actual day-to-day in-plant problems and how they were handled by management men

Can You Discipline a Worker Who Leaves Early to Take Care of Personal Business?

What Happened:

ABOUT AN HOUR before quitting time, Leadman Andy Jaeger got a phone call at the plant that his brother had to be driven to the hospital. He asked Foreman Dore to give him a pass because he had to leave. He didn't say why. Dore was shorthanded, and refused. Jaeger made a couple of phone calls trying to get a friend to drive his brother to the hospital. No soap. Again he asked Dore for a pass. Dore said, "It's got to be darned important for me to give you one."

Each incident given in this department is taken from a true-life grievance which went to arbitration. Names of some principals involved have been changed for obvious reasons. Readers who want the source of any of these cases may write to Rock Products.

Jaeger said, "It *is* important. I've got to leave," but he still didn't say why, and Dore again refused. Jaeger left anyway. Next day he got a three-day suspension. He claimed it was unfair:

1. I've worked here 15 years, and I've never broken a rule before.
2. I told the men under me how to carry on until quitting time so the work didn't suffer.
3. Foremen usually give passes to workers for urgent personal business without pressing them for details. It was unfair to refuse me.

The foreman's answer was:

1. Jaeger should have been specific about what was so urgent.
2. He could have gone to the superintendent or got his steward to help him. There was no excuse for just walking off without a pass.
3. I've taken his good record and all the rest of it into account. A three-day suspension is a very mild penalty for breaking a well-known plant rule against quitting early without permission.

Was the foreman:
Right? ☐ **Wrong?** ☐

What Arbitrator Lewis Gill Ruled:

"Though Jaeger may have honestly felt that Dore had treated him unfairly in refusing permission to leave, and although he had made sure that the men under him were properly instructed on the work to be done before quitting time, he knew it was a violation of the rules to walk out after permission had been denied. He obviously should have made some attempt to persuade Dore of the urgency of his mission, or taken up the problem with his steward or higher management. There *are* extenuating circumstances. Dore's refusal of a pass seems to have been a bit arbitrary; it appears that the general practice *has* been for the foreman to grant requests under such circumstances, or at least check with higher management if the request seems inopportune. All this strongly suggests that the situation should have been handled differently both by Dore *and* by Jaeger. The fact remains that Jaeger was guilty of improper conduct. The suspension should be sustained and the grievance dismissed."

(Continued on following page)

Can You Discipline a Worker Who Runs his Own Business While He's on "Sick Leave"?

What Happened:

BILL HUDSON was given a leave of absence because of illness. His doctor had sent the plant superintendent a letter saying that Hudson was under his (the doctor's) care for tension neurosis, and was unable to work. The superintendent found out that Hudson, while on sick leave, had continued to run a business he owned on the side. When Hudson returned to his job, the superintendent fired him for being absent without cause. Hudson appealed, and the case came to arbitration. The superintendent said:

1. If Hudson was well enough to run his own business, he was well enough to come to work.
2. This "neurosis" business was just so much malarkey. Hudson hadn't been ill at all—just goofing off.

Hudson protested:

1. I was ill and I have letters from my doctor to prove it.
2. I didn't run my business myself. I hired someone to run it for me.
3. The superintendent gave me a leave of absence because of my doctor's note. Now he questions it—which he has no right to do. I want my job back.

Was the worker:
Right? ☐ **Wrong?** ☐

What Arbitrator Sylvester Garrett Ruled:

"While it may be that the activities of the grievant during his sick leave were such as to suggest to the company that he was not really ill, they nonetheless provide no sufficient basis for the company to disregard the doctor's certificate. The doctor is a reputable physician whose professional competence and good faith are not challenged by the company. Grievant testified that extreme domestic difficulty induced a severe mental and nervous ailment which made him unable to work. Mental disability may provide as valid a basis for sick leave as a physical illness, where certified by a reputable doctor in the accepted manner. The evidence substantially fails to support the view that the grievant was absent without proper cause. The grievance is sustained."

If Two Employes Engage in Horseplay, Should They Both be Fired?

What Happened:

ROY OLSON was a "card." He liked to fool around and tease people. His specialty was teasing the female employes in his department. His supervisor talked to him a few times but never took any other action.

One day Olson picked up an empty wire spool and "playfully" tossed it at Mary Wellus. It hit her in the thigh. She wheeled around, grabbed the spool up off the floor, wound up like a pitcher and heaved it back at Olson. The toss narrowly missed the head of another worker. The foreman felt he'd had enough of this sort of nonsense and fired both employes.

Olson took what was coming to him without complaint, but Mary filed a grievance. She argued:

1. I didn't start the horseplay, so I shouldn't get the same penalty as Olson.
2. I got no warning. Supervision knew that horseplay was going on and did nothing about it.

The company backed its supervisor. It maintained:

1. Mary's action almost injured another worker.
2. She should not have reacted in kind but should have told her supervisor about Olson's childish behavior.
3. She knew that horseplay is a serious offense. It is in the company rulebook.

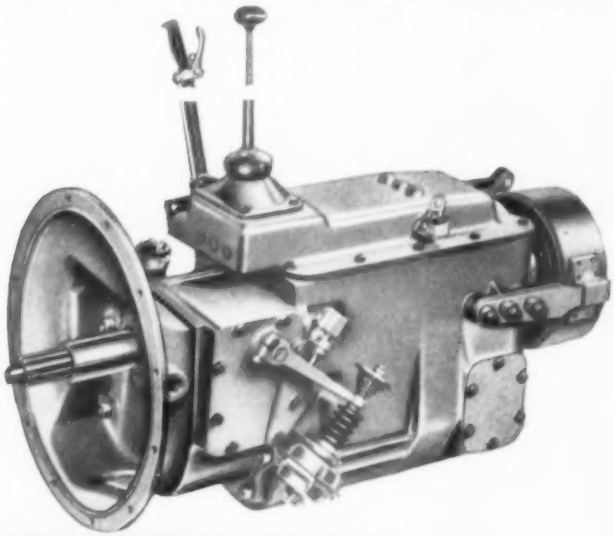
Was Mary:
Right? ☐ **Wrong?** ☐

What Arbitrator Havighurst Ruled:

"Roy Olson, from the time he came to Warwick, had engaged in a vicious form of teasing directed toward all female employes who worked in his vicinity; he had subjected Mrs. Wellus to repeated annoyances; supervisory employes had known of this situation at least to some extent, and they had done nothing about it. These facts place a measure of responsibility upon the company for the incident, which we believe it is proper to take into account in connection with the question of justification for the discharge. Mary Wellus should be reinstated without loss of seniority and with back pay."

END

Ideal for Highway Hauling-
CLARK stepMatic Transmission



Here's happy and profitable news for all operators whose truck equipment takes punishment—Clark's stepMatic Transmission. This transmission has proved particularly ideal for long-haul, high-speed operations.

- Ten speeds—splitting ratios in between the normal 5-speed transmission ratios—giving 28% steps to fit every hauling need.

Transmission gears synchronized. Semi-automatic shift for the splitting ratios

- Full control of gear-shifting at all times.
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- Increases transmission life—reduces shock loads. Less downtime for repairs.

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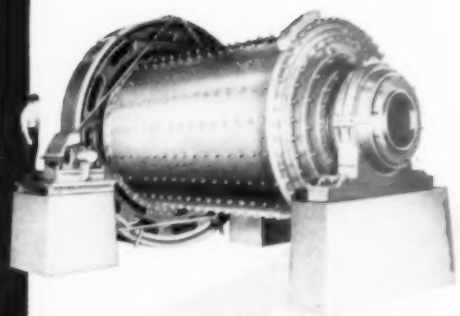
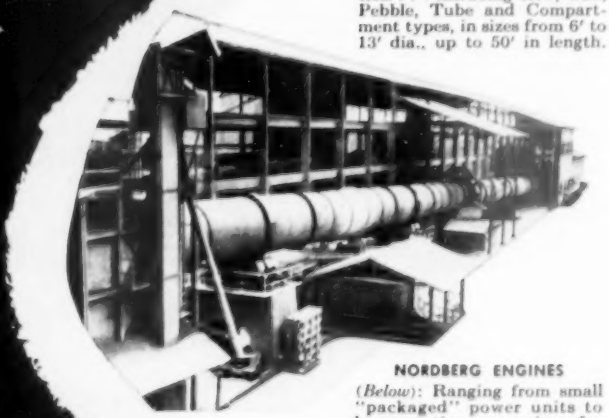
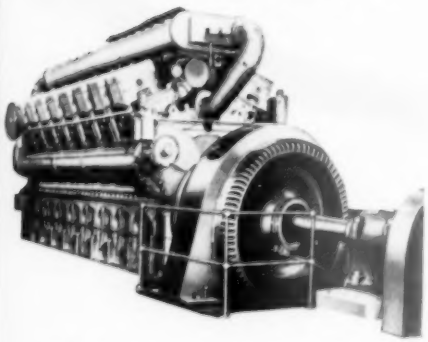


NORDBERG GRINDING MILLS
(*Above*): Built for wet or dry, open or closed circuit operation . . . including Rod, Ball, Pebble, Tube and Compartment types, in sizes from 6′ to 13′ dia., up to 50′ in length.



NORDBERG ENGINES
(*Below*): Ranging from small "packaged" power units to large stationary engines for base load and standby power, Nordberg engines are built in a wide range of types for Diesel, Duafuel® and Spark-Ignition Gas operation, in sizes to over 12,000 hp.



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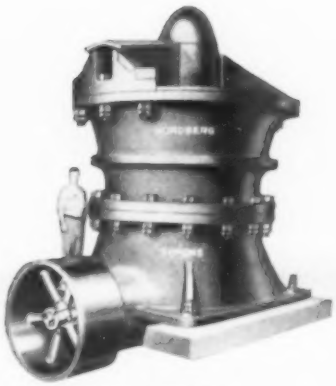
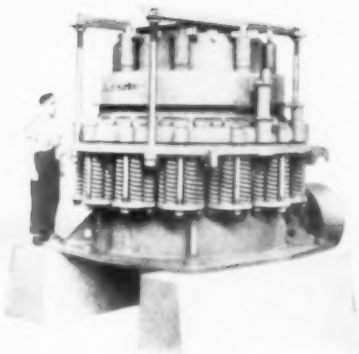


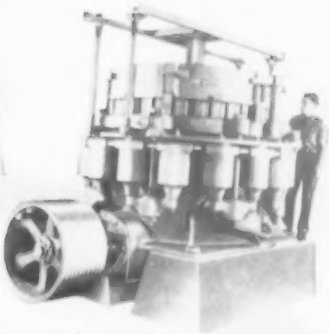
SYMONS® PRIMARY GYRATORY CRUSHERS

(*Above*): These gyratory crushers are built for big tonnage, heavy duty primary breaking in 30″, 42″, 48″, 54″, 60″ and 72″ feed opening sizes, for capacities up to 3500 or more tons per hour.



SYMONS CONE CRUSHERS

(*Above*): For secondary and finer reductions, Symons Cone Crushers, in both Standard and Short Head types, are built in sizes ranging from 22″ to 7′ in diameter, for capacities from 6 to 900 or more tons per hour.

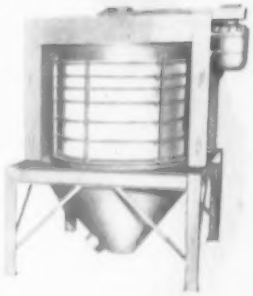


GYRADISC® CRUSHERS

(*Above*): Built to supplement the world renowned Symons Cone Crusher, the Gyradisc Crusher provides a medium for the profitable production of sand sizes of specification material.

NORDBERG KILNS — DRYERS and COOLERS

(*Left*): Built to meet a wide range of requirements, including pyro processing operations, drying, calcining, burning and cooling.



SYMONS V-SCREENS®

(*Right*): Thoroughly proved in use for extremely fine, single cut wet or dry separations. Employs controlled diffused feed and vertical flow of material.

SYMONS VIBRATING BAR GRIZZLIES

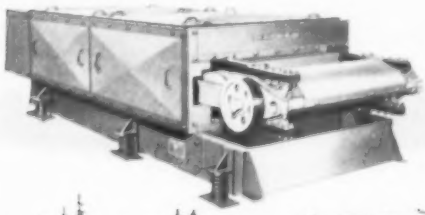
(*Below*): Built for heavy duty large capacity primary scalping service. Particularly effective when handling wet, sticky or gummy rock.

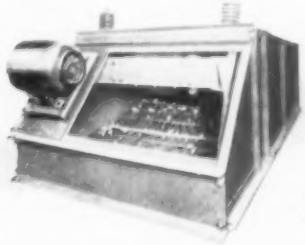
SYMONS HORIZONTAL VIBRATING SCREENS

(*Below*): Permit level, large capacity screening of extreme accuracy. Built in single, double and triple deck types in a wide range of widths and lengths. Available with dust housing (as illustrated) for handling multi-aggregate bituminous mix in asphalt work.

SYMONS ROD DECK SCREENS

(*Below*): Highly efficient screening surface of spring steel rods—easily replaced. Especially suited for wet, sticky materials.





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New Plant of L. Romano Construction Co., East Providence, Rhode Island, processes 200 tons per hour of washed aggregate—sand, and 3 sizes of gravel all under 1½" and stockpiled. Telsmith designed the plant, and built the machinery. Send for Telsmith Complete Plant Service Bulletin 278.

Crushing Plant (*above*)—Plus 4" gravel goes to a 18" x 32" Telsmith Jaw; plus 1½" gravel to a 36-S Gyrasphere Crusher; the scalper is a 4' x 12' Telsmith 2-deck Vibro-King. **Washing Plant** (*right*) has a 72" Telsmith Super-Scrubber; two 4' x 12' Telsmith 2-deck Vibro-King rinsing-sizing screens; 24" x 20' Telsmith Twin Screw Sand Classifier.

Many Features of Modern Design— In this plant both Telsmith Crushers are high capacity, low maintenance machines. The large-capacity Telsmith sizing screens have spray bars on every deck. The extra heavy-duty Telsmith Super-Scrubber takes out the clay as well as soft stone, assuring top quality aggregate always. Send for Telsmith Bulletin 266.

G-26

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PEOPLE IN THE NEWS

N.C.M.A. Executive Director

WALTER W. UNDERWOOD has been appointed executive director of the National Concrete Masonry Association, Chicago, Ill. He succeeds Elmer W. Dienhart who continues with the Association in a consulting capacity. Mr. Underwood was formerly assistant director of the National Association of Home Builders. Prior to that he was executive director of the Building Contractors Association of California, an affiliate of N.A.H.B. A native of Tulia, Texas, Mr. Underwood attended Brownsville (Texas) Junior College and Princeton University, Princeton, N.J.

Assistant Director

JAMES H. NEELAN has been named assistant director, advertising and public relations division, Universal Atlas Cement Co., New York, N.Y.

Pumice Institute Officers

WILLIAM E. MILLER, The Central Oregon Pumice Co., Bend, Ore., was elected president of the Pumice Institute at the recent board of directors meeting in San Francisco, Calif. He succeeds R. W. Alley, General Pumice Corp., Santa Fe, N. M. Rodney Gordenker, Thompson Pumice Co., Tionesta, Calif., was named vice-president; R. W. Alley, Jr., General Pumice Corp., Santa Fe, N.M., treasurer; and Lloyd Williamson, Williamson Pumice Co., Bend, Ore., secretary.

District Sales Manager

NELSON COVER has been appointed district sales manager in the Philadelphia district of Nazareth Cement Co., Nazareth, Penn. He succeeds John B. Emack, who will continue with the company until his retirement.

Ash Grove Appointments

A. LUNDTEIGEN, JR., has been promoted from superintendent of the Louisville, Neb., cement plant to chief engineer of all plants. He succeeds A. K. Frolich, formerly vice-president and chief engineer, who has retired after 33 years of service. P. L. Wright, formerly assistant superintendent, succeeds Mr. Lundteigen as superintendent of the Louisville plant. In assuming the position of chief engineer, Mr. Lundteigen attains a position once held by his father, A. Lundteigen, Sr., a cement chemist of international renown who was chief engineer of Ash Grove for many years. A graduate of the University of Michigan, Ann Arbor, Mich., with a degree in mechanical engineering, Mr. Lundteigen joined the Louisville cement plants as a draftsman in 1927. He became assistant superintendent in 1929, and was made superintendent in 1945.

Mr. Wright attended the University of Kansas, Lawrence, Kan., and joined the production staff of the Ash Grove cement plant in Chanute, Kan., in 1927. Shortly thereafter, he was transferred to Louisville, Neb., as shop foreman. He has served as assistant superintendent since 1945.

Graham D. Jones, a graduate of the University of Nebraska, Lincoln, Neb., with a degree in civil engineering, succeeds Mr. Wright as assistant superintendent at Louisville, Neb. He served in the construction field and with a firm of consulting engineers prior to joining Ash Grove.

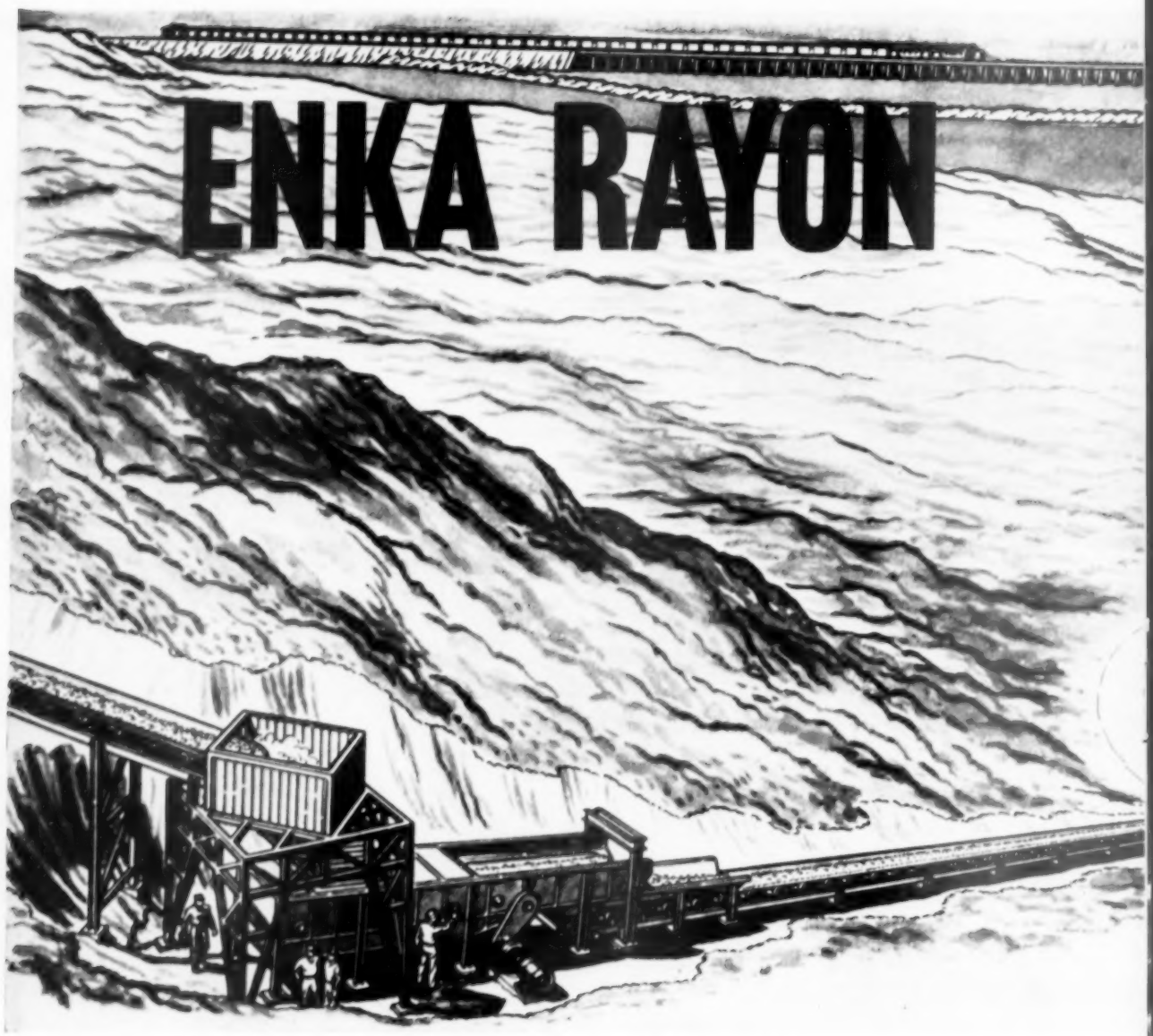
Chairman of the Board

JOHN HAUBERG, JR., has been elected chairman of the board of Graystone, Inc., Seattle, Wash. Mr. Hauberg is president of Potlach Yards, Inc., which recently purchased controlling stock in the Graystone firm. F. M. Kettenring has been named president; Homer A. Bergren, vice-president; Mott Rieke, secretary-treasurer; and K. T. Duryee, assistant secretary-treasurer. Elected to the board of directors are F. M. Kettenring, W. W. Montgomery, Homer A. Bergren, Tom W. Gamble, John W. Murphy, and Samuel H. Brown. Leonard Mannon, a graduate in business administration of the University of Washington, Seattle, Wash., has joined the masonry department sales staff.

Chief Geologist

DR. FREDERICK C. KRUGER has been appointed chief geologist for International Minerals and Chemical Corp., Chicago, Ill., and will be responsible for geological appraisals and the evaluation of new mineral discoveries. He was formerly assistant chief geologist for Reynolds Metal Co. A native of St. Paul, Minn., Dr. Kruger received his B.S. and M.A. degree in geology from the University of Minnesota, Minneapolis, Minn., and his Ph.D. in geology from Harvard.

(Continued on page 30)



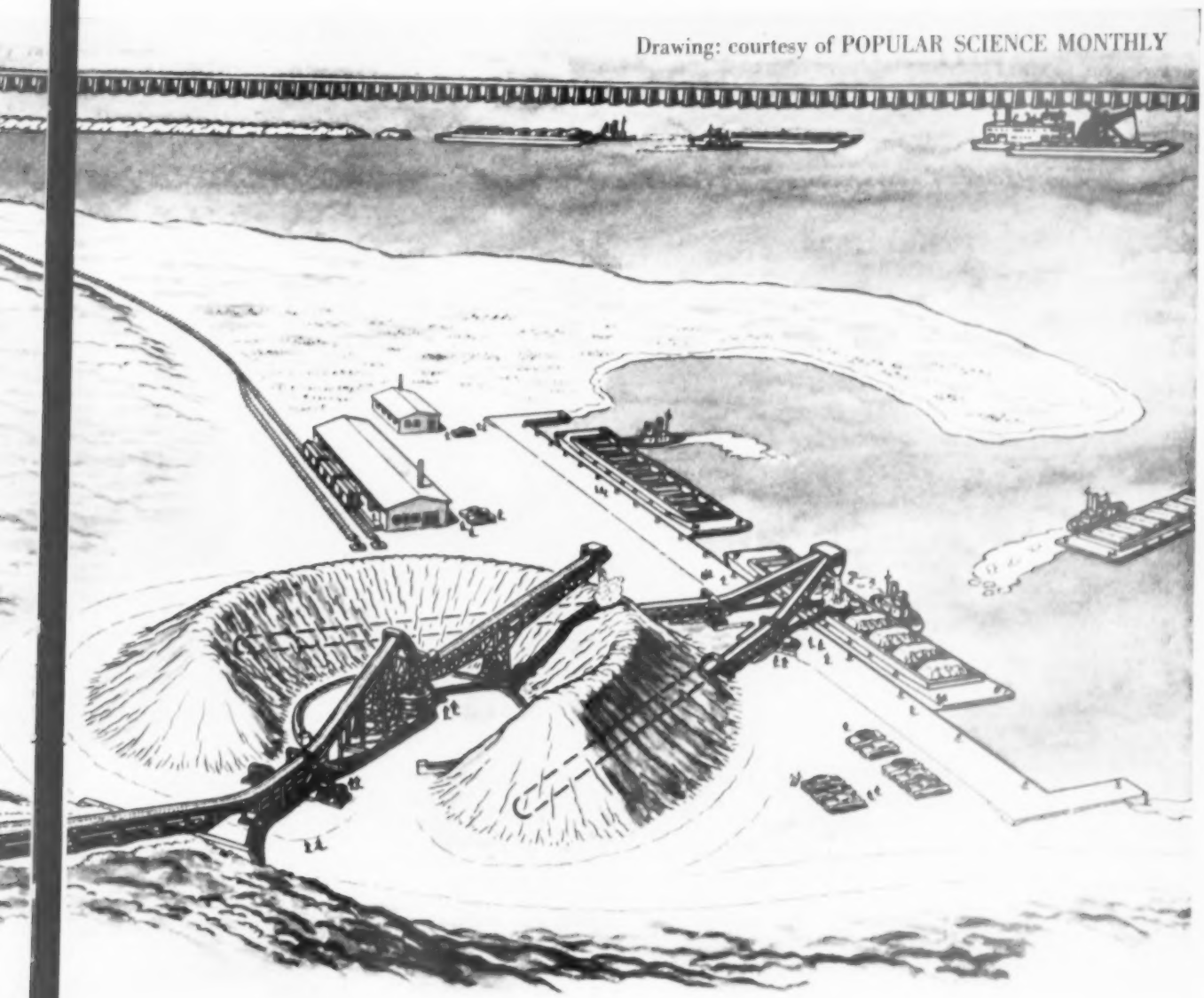
helps to build a 13-mile causeway

AMERICAN ENKA CORPORATION

producers of Jetspun® • filament and staple rayon • filament and staple nylon

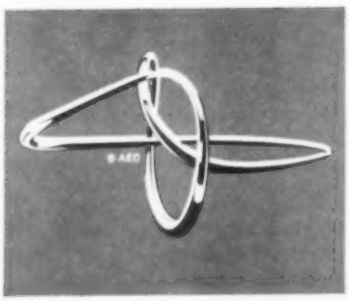
530 Fifth Avenue, New York 36, New York • 123 Jefferson Standard Building, Greensboro, North Carolina
871 McCallie Avenue, Chattanooga, Tennessee • 2001 Industrial Bank Building, Providence, Rhode Island

Drawing: courtesy of POPULAR SCIENCE MONTHLY



across the Great Salt Lake

Enka
symbol of quality
and service in
synthetic fibers



Hewitt-Robins has specified Enka High Tenacity Rayon in the 1.8 mile conveyor belt system for Southern Pacific. In this installation, Enka Rayon is delivering top performance with economy at a record 8,300 ton-miles-per-hour. Enka Rayon combines remarkable strength and durability with flexibility, exceptional resilience, tension and abrasion resistance. This means that by specifying Enka High Tenacity Rayon in your conveyor belts you get the above advantages and you get them at lower cost. Call or write for further information.

Enter 1020 on Reader Card

720 TONS . . . AN HOUR'S HAUL WITH THIS SAUERMAN TOWER EXCAVATOR

Pioneer's giant excavator is the largest power scraper installation in the sand and gravel industry.

Pioneer Sand and Gravel Co., Seattle, Wash., needs a huge flow of material to supply its ready-mix plants and barges. They're getting it with a 12-cu. yd. Crescent Scraper.

The Crescent handles 480 yds. or 720 tons per hr. over an average haul from 300 to 350 ft. It operates along a 675-ft. span between movable head and tail towers located at the base and top of the 240-ft. high bank.

In addition to high rate of delivery, adoption of the Sauerman Method provides two other advantages over the 5-cu. yd. power shovel that formerly operated off the "toe" of the bank. These are: (1) material can now be taken from anywhere on the bank for blending and selection of gravel, and (2) material can be moved down the slope with no danger of cave-ins.

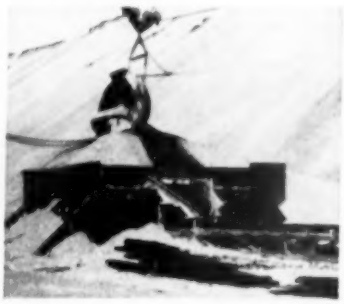
The tower excavator at Pioneer is mounted on portable towers and engineered by Sauerman for economical excavation in this type of deposit. This same digging tool . . . the Crescent scraper . . . can be engineered to your operation to give you equivalent high production at low cost.

Sauerman Scrapers range from ⅓ cu. yds. up to 18 cu. yds.

Because in most cases it is cheaper to drag material than it is to lift and transport it, ***they give you the lowest cost per cu. yd. handled.***

Contact us for information and specific recommendations. Ask for field reports and Catalog A.

This view gives some conception of the height and steepness of the bank on which the Crescent works.



The Crescent delivers to a portable field hopper from which belt conveyors transport the material to the plant.

SAUERMAN BROS. INC.

630 S. 28th AVE. BELLWOOD, ILL.

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

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PEOPLE IN THE NEWS

(Continued from page 27)

Division Vice-President

CARL G. HOGBERG has been appointed vice-president of the Michigan Limestone Division of the United States Steel Corp., Cleveland, Ohio. Born in Escanaba, Mich., Mr. Hogberg attended Michigan College of Mining and Technology, Houghton, Mich., where he received a degree in engineering. He joined U. S. Steel as a blast furnace apprentice at South Chicago works in 1935, was transferred to Pittsburgh in 1941, primarily associated with blast furnace raw materials development. He was appointed assistant to the vice-president of Michigan Limestone Division in 1955 and one year later was promoted to assistant vice-president. Mr. Hogberg has prepared a number of technical articles on blast furnace design and operation and holds several patents in this field. He has also been active on various iron and steel industry technical committees. In 1945, he received the J. E. Johnson Award of the American Institute of Mining and Metallurgical Engineers.

Cinder Block Appointments

STEWART D. TOMPKINS has been appointed executive vice-president of Cinder Block and Material Co., Indianapolis, Ind. Charles E. Boswell has been named secretary. Mr. Tompkins, a graduate of Indiana University, Bloomington, Ind., joined Cinder Block in 1950, became sales manager in 1953 and later general manager. Mr. Boswell attended Purdue University, Lafayette, Ind., and has been with the company since 1937.

(Continued on page 34)

A new bulk-packed blasting agent with high velocity...for medium to fairly hard shooting

Du Pont "Nitramite®" F. R.

Here's a new blasting agent, ideal for coyote shooting or for pouring in drill holes of 3" diameter or over. Du Pont "Nitramite" F.R. has all the safety features of other blasting agents plus a much higher order of performance than other ammonium nitrate products.

While it must be loaded under dry conditions, it can be used as a top load in wet holes above a water resistant blasting agent or standard explosive to achieve maximum shooting economy. Standard "Nitramite" or "Nitramon" primers provide most effective initiation plus the ultimate in safety. The density of "Nitramite" F.R. ranges up to 1.15 depending on method of packing. It is headache-free.

Most economical unit weighs fifty pounds and is packed in 5-ply multi-wall paper bags or asphalt-lined burlap bags. Other type containers are available for special applications at slightly higher cost.

Contact your Du Pont Explosives representative for complete information, or write E. I. du Pont de Nemours & Co. (Inc.), Explosives Dept., Wilmington 98, Del.

DU PONT
BLASTING AGENTS
Products of Du Pont Research

DU PONT

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

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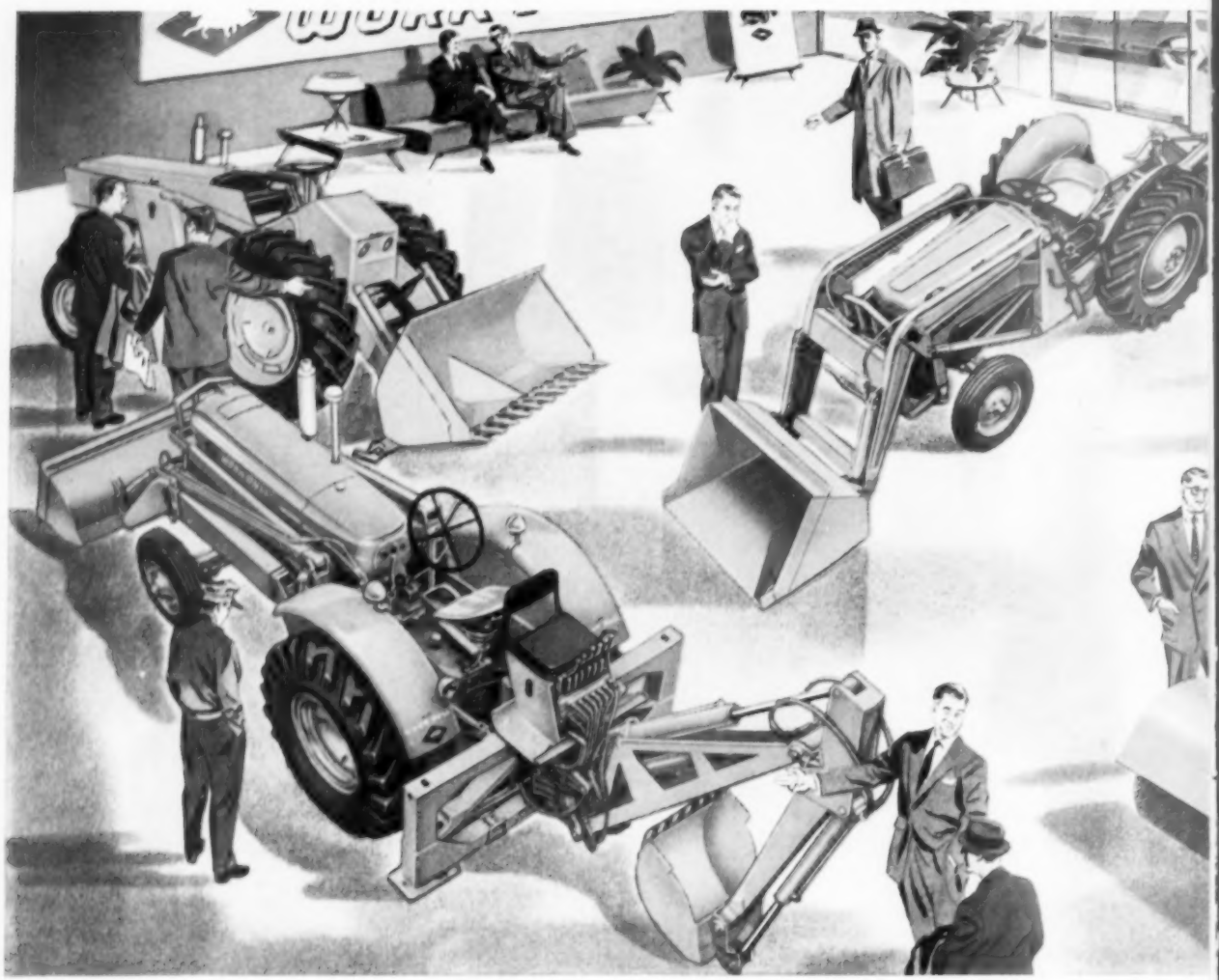
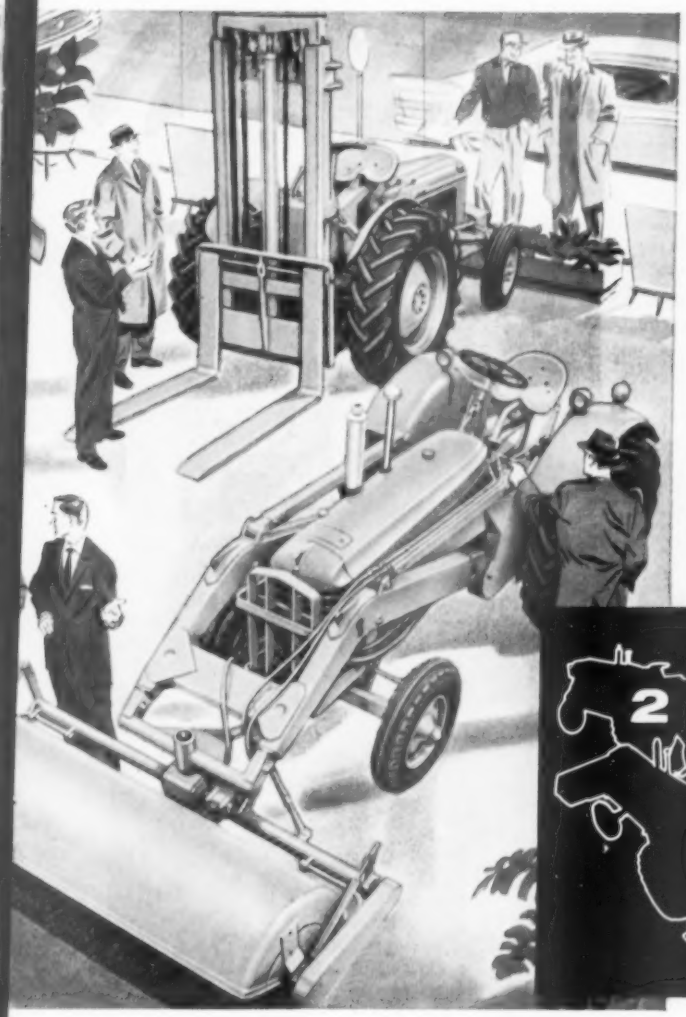


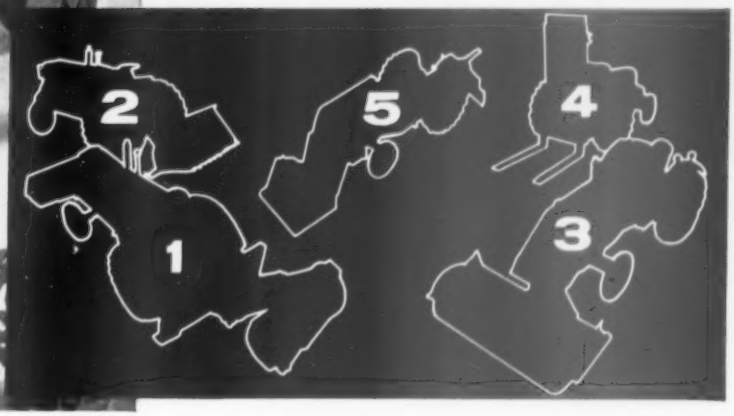
5 tractors, 20 interchangeable attachments--

new family of power-matched packages



Tractors and attachments — designed for each other

1. **52-hp** Work Bull Model 404 tractor. ¾-yd. Model 500 loader. Model 185 backhoe.
2. **42-hp** Davis Pit Bull. Model 500 loader with ⅞-yd. bucket. Scarifier.
3. **42-hp** Work Bull Model 303 tractor. Hydraulically-controlled, 8-ft. broom.
4. **Model 202 Fork Lift** with 10-ft. mast (Std.) for lifts of up to 4000 lbs. 21-ft. mast for lighter loads.
5. **34-hp** Work Bull Model 202 with rear-mounted multi-purpose, adjustable angle blade and . . . Model 102 loader with 11 cu. ft. hydraulic bucket and down-pressure cylinders.



WORK BULLS PAY OFF as high-performance, money-saving units on scores of jobs

THE reason — integrated design! Both tractors and attachments are designed for *multiple machine versatility*. For example — a Work Bull with a loader also mounts more than a dozen other interchangeable attachments that quickly, easily convert the same tractor into a highly efficient backhoe, fork lift, swinging crane, grader or any of many other highly efficient tools. And at a surprisingly low cost!

In five to 15 minutes you can mount or dismount any Work Bull attachment. Switching involves merely one man — no wrenches, no special gear. And front-end attachments utilize the same hydraulic arms and frame. Backhoe attaches or detaches in less than 5 minutes!

Check the list of Work Bull attachments. Choose the loader, blade, fork lift, mower, backhoe, snow plow, auger, broom, pipe and cable layer and others to meet your specific needs.

Get full details and the name of your nearest distributor. Write for 24-page catalog.

And you have a single source, one responsibility for sales and service on both tractors and attachments!

M·H·F WORK BULLS

Division of Massey-Harris-Ferguson, Inc.

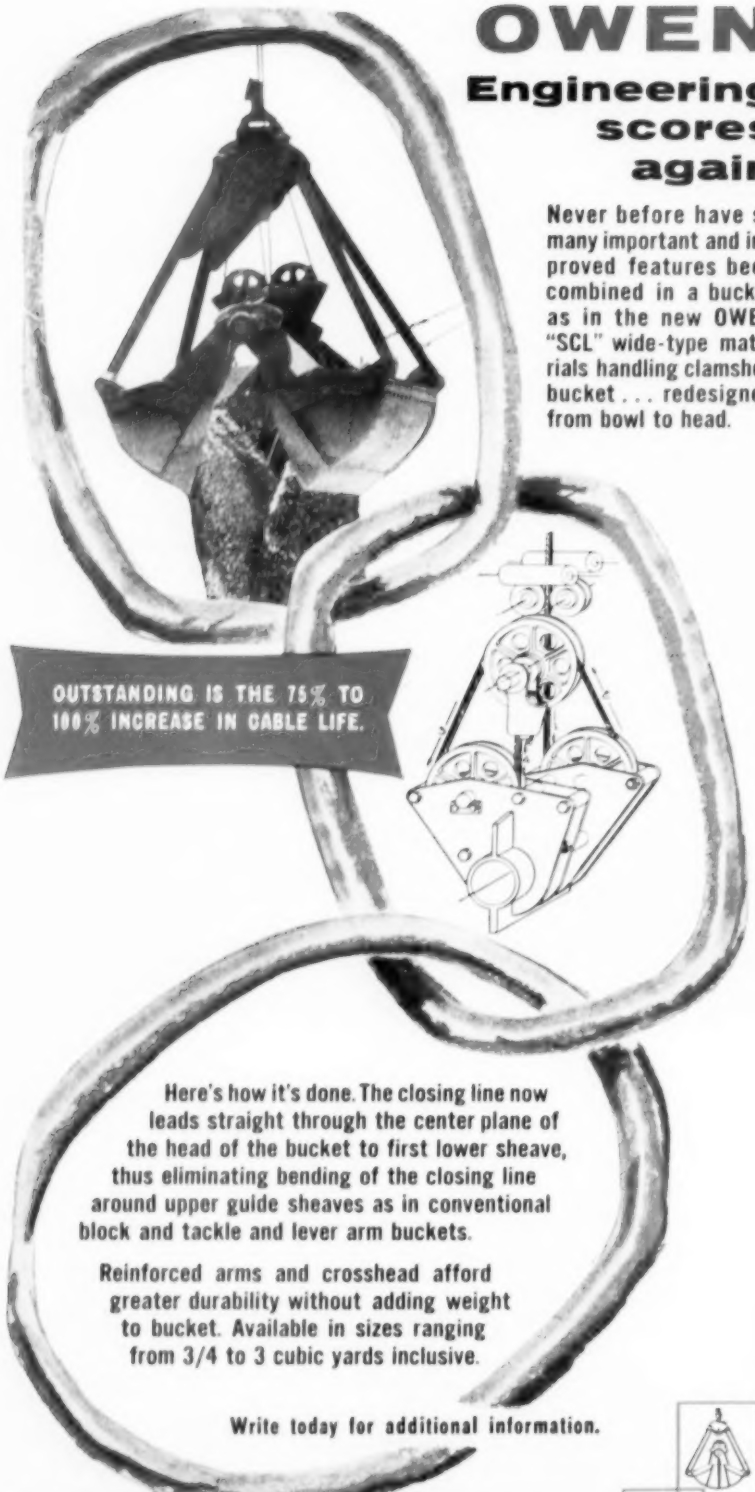
26-E Quality Avenue **Racine, Wisconsin**

Enter 1045 on Reader Card

OWEN

Engineering scores again

Never before have so many important and improved features been combined in a bucket as in the new OWEN "SCL" wide-type materials handling clamshell bucket . . . redesigned from bowl to head.



OUTSTANDING IS THE 75% TO 100% INCREASE IN CABLE LIFE.

Here's how it's done. The closing line now leads straight through the center plane of the head of the bucket to first lower sheave, thus eliminating bending of the closing line around upper guide sheaves as in conventional block and tackle and lever arm buckets.

Reinforced arms and crosshead afford greater durability without adding weight to bucket. Available in sizes ranging from 3/4 to 3 cubic yards inclusive.

Write today for additional information.

The OWEN BUCKET Co.

BREAKWATER AVENUE, CLEVELAND 2, OHIO

BRANCHES: New York • Philadelphia • Chicago
Berkeley, Calif. • Fort Lauderdale, Fla.

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PEOPLE IN THE NEWS

(Continued from page 30)

Lake Asbestos Executives

Ralph D. Williams

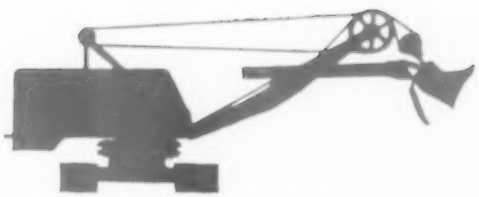
William R. Whitener

RALPH D. WILLIAMS has been appointed vice-president of Lake Asbestos of Quebec Limited, a subsidiary of American Smelting and Refining Co., New York, N.Y., and William R. Whitener has been named sales manager. A native of Pennsylvania, Mr. Williams has conducted market surveys for the asbestos firm and has had wide experience in the chemical process industries. He has been with American Smelting since 1949. Mr. Whitener, who was born in Honolulu, has been associated with the building materials and insulation fields.

Sales Engineer

JOHN W. HADESTY of Everett, Penn., has ended a 17-year connection with the Pennsylvania Turnpike to become sales engineer for the newly-formed prestressed concrete division of New Enterprise Stone and Lime Co., Inc., New Enterprise, Penn.

(Continued on page 36)



WHEN THE DIGGING GETS REALLY TOUGH

Patent Applied for

ESCO WEAR CAPS CUT ADAPTER REPLACEMENT COSTS!

ESCO replaceable Wear Caps protect point adapters for long-wearing life.

Wear Caps are rugged, heat treated, high Brinell, 12M Castings, that slip over the top front of the adapter to protect the adapter from abrasive wear.

Replace the cap and not the adapter.

Designed specifically for large shovels, to cut adapter replacement in hard rock and other extreme conditions.

See your nearest *ESCO* dealer.
Ask for *ESCO* Tested Points Catalog No. 187.

ESCO

ELECTRIC STEEL FOUNDRY COMPANY

2185 N. W. 25TH AVE. • PORTLAND 10, OREGON
MFG. PLANTS AT PORTLAND, ORE. AND DANVILLE, ILL.
Offices in Most Principal Cities
ESCO INTERNATIONAL, NEW YORK, N. Y.
IN CANADA ESCO LIMITED

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STOP multiwall valve troubles with Bemis SHUR-SEAL® valves

STOP sleeves out of place

STOP sleeves missing

STOP valves stuck together

The integral sleeve of Bemis SHUR-SEAL Pasted Valve Multiwalls is a special extension of any of the plies or of several of them, extended to the same or different lengths. Thus the valve can be tailor-made to fit your product. It can NOT be out of place . . . or missing . . . or stuck together.

With the integral sleeve, the flap is always there, always in place, always acts the same in every bag. It opens quickly and easily at the packer. It can never interfere with the packer spout entering the valve and it will never be pushed into the bag to get into the product.

A tailor-made variation of the SHUR-SEAL valve will provide you with the exact bag for your product and packing requirements. Check with your Bemis Man... he'll help you determine just which variation of the SHUR-SEAL valve is correct for you.

Another Bemis first . . .

for YOUR benefit

BEMIS BAG CO.

General Offices—St. Louis 2, Mo.
Sales Offices in Principal Cities

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PEOPLE IN THE NEWS

(Continued from page 34)

Director of Sales

A. C. CONNOLLY, JR., has been appointed director of special sales for the Texas Portland Cement Co., Orange, Texas. Mr. Connolly began his career in the cement industry at Houston, Texas, in 1927, as sales representative for Lone Star Cement Corp. Brad McClain, formerly regional sales representative for Ideal Cement Co. in Houston, has been appointed sales manager. He is a graduate of the University of California in Los Angeles.

Canada Sales Personnel

G. A. GRANT has been appointed vice-president and director of sales of Canada Cement Co., Montreal, Canada. He will be succeeded as general sales manager by A. L. Campbell who has been serving as assistant general sales manager. H. E. Savoie has been named to succeed Mr. Campbell as assistant general sales manager. V. C. Hamilton, general manager of operations, has been elected a member of the board of directors. Also elected directors are A. Jodrey, president of The Minas Basin Pulp & Power Co. and C. V. Emerson, president, Emerson Brothers Ltd.

Public Relations Manager

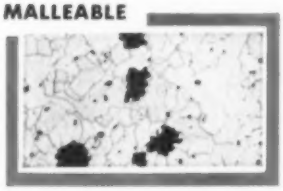
FRANK L. CROSBY has been named manager of public relations for Permanente Cement Co., Oakland, Calif., and subsidiaries, including Kaiser Gypsum Co., Inc., Glacier Sand and Gravel Co. and Permanente Steamship Corp. He has been public relations director for Kaiser Gypsum Co. for the past year and a half. Prior to that he had charge of the company's public relations in the Pacific Northwest. He attended Seattle University and the University of Washington.

(Continued on page 40)

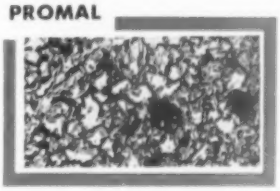
Link-Belt Promal chain specified to resist heavy loads and abrasive wear

GREATER WEAR RESISTANCE of Link-Belt H-Class Promal Drag Chain has been proved in grueling conveying service under severely abrasive conditions. Promal's extra strength provides low-cost, long-life performance where ordinary chains fail.

MALLEABLE



PROMAL



MICROPHOTOS show difference between ordinary malleable iron and Promal. Left—white areas in malleable microphoto represent "free iron" . . . black shows soft nodules of carbon. Right—dark areas in Promal structure show stronger, stiffer reinforcing material which strengthens metal; resists distortion, wear.

Specially heat-treated malleable iron provides extra wear resistance

Fewer conveyor shutdowns and minimized replacements are economies realized by users of Link-Belt Promal chain. Its greater strength absorbs continuous impact loads — and wear resistance supplies the durability to cope with severe abrasion.

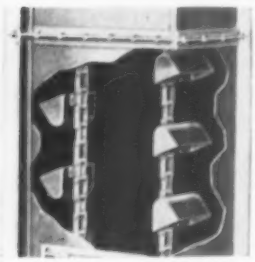
Promal is more than a partially annealed or surface-hardened malleable iron. Developed by Link-Belt, this specially heat-treated malleable iron is actually transformed into a metal of radically different physical properties. Promal, because of uniform micro-structure throughout its whole section, provides greater ultimate strength, higher yield point, exceptional fatigue resistance and a remarkable capacity to withstand abrasive conditions.

For unusually abrasive or mild corrosive conditions, Promal chain can be furnished with "file-hard" surfaces. Copper bearing or special alloy content also available.

How and where to apply Promal Chains in the Non-Metallic Industries

Choose Link-Belt Promal chains for highly abrasive conditions—for extra strength and wear resistance demanded by heavy loads or long, sliding conveyors. They last much longer . . . cost but a little more.

The wide range of Link-Belt chains available in Promal includes all types of cast and combination chains.



Class C combination chain is one of the most popular types for general purpose elevator and conveyor service. The cast center links and steel sidebar combination forms a strong, rugged yet inexpensive elevating medium. Attachments are available for both cast center links and the steel sidebars so that desired bucket spacing may be accommodated.

Ley bushed chain withstands grueling service conditions

Rugged, reinforced cast links with renewable, hardened steel bushings on Link-Belt Ley Bushed chains minimize abrasive wear. Shields on integral sidebars deflect dirt and abrasives from joints. Steel connecting pins are also shielded —and locked against rotation. Heels on inside of links provide wear-resistant sliding surfaces and guide the chain onto the sprocket.

HEADQUARTERS for chains, sprockets and other Link-Belt conveying and mechanical power transmission products is your nearby Link-Belt factory branch store or authorized stock-carrying distributor.

LINK-BELT

CHAINS AND SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 11,292

Enter 1014 on Reader Card

Handling materials by crane or locomotive?

Read how Pacific Northwest Alloys switched to Michigan Tractor Shovels and . . .

SAVED $5,000 PER MONTH!

THE BACKGROUND

Pacific Northwest Alloys, Inc., is a wholly-owned subsidiary of Chromium Mining & Smelting Corporation of Chicago. Their plant, located just outside Spokane, Washington, produces an alloy known as low carbon ferro chrome from African, Philippine and domestic ores. This new, fast-melting alloy is used in production of some of the new low carbon stainless steels.

THE PROBLEM

Raw materials, such as chrome ore, limestone and quartz, are stockpiled outside the plant. Formerly, locomotive cranes loaded this material into rail cars; these were moved by a switch engine to unloading hoppers. At the time, this seemed the best method of handling the new materials. Then management saw what Michigan Tractor Shovels could do! Result?

Two Michigans replace two locomotive cranes

Two of the old locomotive cranes were retired, along with most of the hopper cars. Two Michigan Model 175A Tractor Shovels now do the entire job . . . moving *several million pounds* of raw materials per month . . . saving approximately $5,000 per month! And that's not all . . .

Weather no longer slows production

The old method of plant feeding was mainly a warm-weather proposition. Raw materials often froze in the hopper cars, simply wouldn't drop—but *production* did, until Michigans were put on the job. Now, transfer of raw materials is fast *and dependable*, no matter what the weather. Despite haul distances of up to ½ mile, *one* Michigan outworks *two* railroad cranes and the large labor crew formerly used during the winter months. In addition . . .

Switching gondolas is another important part-time Michigan job. Here, a pusher-equipped Model 175A puts its four-wheel-drive and 133 hp to work, moving several 100-ton cars over a spur line to the stockpile area.

Michigans permit new sand pit operation

Pacific Northwest Alloys used to *buy* sand, have it shipped in and stockpiled. But now their Michigan Tractor Shovels have made it feasible to open a small sand pit right on Company property. One of the versatile 2¼ yard Michigans digs the plant's daily requirements (about five loads) and delivers it to the unloading hoppers. It's a one-mile haul, but Michigan's excellent speed makes a dump-truck and driver unnecessary—it's actually less costly to let the Michigan do the whole job!

Plant manager reports low maintenance costs

"We use the Michigans two shifts per day, seven days a week on all kinds of jobs," reports Ralph E. Ebersole, Plant Manager of Pacific Northwest Alloys. "They handle material varying from abrasive sand to metallurgical coke (weighing about 30 lbs per cubic foot) to dense chromite ore (weighing over 200 lbs per cubic foot)—yet maintenance costs have been very minor. Savings in both maintenance and labor are more than paying for the Michigans—and we have absolute assurance of uninterrupted production, regardless of weather!"

If performance like THIS appeals to YOU

. . . get in touch with your local Michigan Distributor. He'll be glad to arrange an in-plant demonstration that'll show you just how Michigan Tractor Shovels can improve your profit picture. Count on him, too, to recommend the *correct* size Michigan for your specific operation—there are eight basic models and 38 buckets and attachments ranging in capacity from 6 cubic feet to 6 cubic yards. Choose the finance plan best suited to your investment program, too—including the popular Michigan Lease-Purchase Plan, which lets you put one or more Michigans in your plant without laying out a penny of capital.

Michigan is a registered trade-mark of

CLARK® EQUIPMENT

CLARK EQUIPMENT COMPANY
Construction Machinery Division
2481 Pipestone Road
Benton Harbor 23, Michigan
In Canada: Canadian Clark Ltd.,
St. Thomas, Ontario

MAINTENANCE COSTS CUT 80% HANDLING 8,500 lb/yd ALLOY

When Pacific Northwest Alloys had another problem, they did just that . . . got in touch with their local Michigan Distributor in Spokane. This time, they sought an end to the extremely high maintenance needed on their small loaders used indoors to move low carbon ferro chrome to plant shipping tables. A 16 cubic foot Michigan Model 12B was put on trial. Today, Pacific Northwest Alloys has four of these machines. They have replaced *five* of the old 14 cubic foot loaders. Maintenance costs are only ⅓ of what they were formerly.

HYSTAWAY®
FOR PIT OR QUARRY OPERATIONS

Secondary Breaking

Hystaway crane, equipped with up to 5,000-lb. drop ball efficiently handles secondary breaking.

Jetty Stone and Rip-Rap

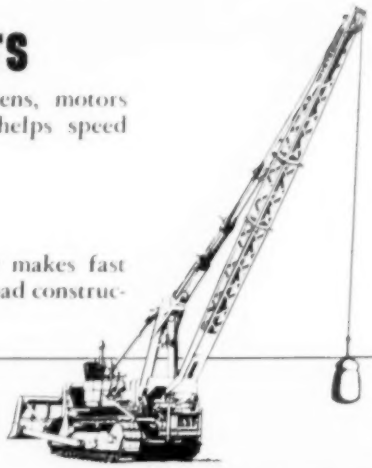
Handling and loading oversize rock accomplished with speed and economy with the Hystaway crane.

Crusher Repairs

Lifting and positioning screens, motors and other parts, Hystaway helps speed repairs.

Clean-Up

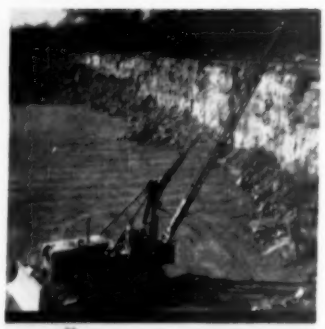
Standard front-end bulldozer makes fast work of floor clean-up, haul road construction and maintenance.



Hystaway mounts on Caterpillar D6, D7 or D8 tractors.

FULL TRACK-TYPE TRACTOR MOBILITY
NO TAIL SWING
FULL 240° SWING

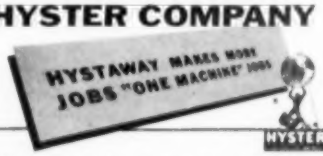
For details, call your Caterpillar-Hyster Dealer.



Hystaway is a registered trademark of Hyster® Company
Caterpillar is a registered trademark of Caterpillar Tractor Co

HYSTER COMPANY

LIFTING CAPACITIES		
Tractor	Standard Boom Length	Capacity at Min. Radius
D8	35	9,200 lbs.
D7	30	7,600 lbs.
D6	25	6,200 lbs.



FACTORIES: Portland, Oregon; Danville, Illinois; Peoria, Illinois; Nijmegen, The Netherlands

2918 N. E. Clackamas St., Portland 8, Oregon
1818 N. Adams Street, Peoria 1, Illinois

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PEOPLE IN THE NEWS

(Continued from page 36)

Buildex Officers

BENJAMIN F. PARK, general sales manager, has been elected vice-president in charge of sales for Buildex, Inc., Ottawa, Kan., and Cecil W. Kincaid has been named vice-president in charge of operations. George K. Mackie, Jr., is president of the company and John W. Mackie, Jr., secretary-treasurer.

Sales Manager

WALTER R. SCHAEFER has been appointed sales manager of the Cleveland office of Geo. Rackle & Sons Co., Cleveland, Ohio.

OBITUARIES

John Prince, chairman of the board of the Stewart Sand and Material Co., Kansas City, Mo., died March 8. He was 80 years old. A native of Vineland, N.Y., and a graduate of Cornell University, Ithaca, N.Y., with a degree in mechanical engineering, Mr. Prince moved to Kansas City in 1906 as an engineer to build the Cement City plant of Missouri Portland Cement Co. He was elected president of the Stewart Sand and Material Co. in 1919 and was named chairman of the board in 1953. He was also chairman of the board of the Consumers Crushed Stone Co., Kansas City, Mo., until 1955. Mr. Prince was a charter member of the Engineers Club of Kansas City and served as president in 1919. He was president of the Kansas City Safety Council in 1922 and 1923, and served as president of the National

(Continued on page 43)

Enter 1029 on Reader Card

Consolidated Copper's new high-speed team—
large drill, big shovel, off-road truck and
mobile 27 mph MICHIGAN TRACTOR DOZER

Take a good look at the picture above. If you were at Consolidated Copper Corporation's Tripp Pit at Kimberley, Nevada, this would be about the only time you'd see their high-speed Michigan Tractor-Dozer at a standstill. And, even here, it won't be for long . . .

Michigan Tractor-Dozer's turbo-charged diesel develops 165 hp, with maximum rimpull of 28,000 lbs. Blade capacity is 2¼ yards. Powered bowl tilt and down-pressure are standard. Unit, shown here, is dozing boulders at Consolidated Copper's pit near Ely, Nevada.

Seconds after the truck leaves this waste-stripping bench, the Michigan will slip in to clean the load area. Instant, shock-free, no-clutch, finger-tip shifting between forward and reverse moves the Michigan quickly out of the way of the next truck or the shovel boom. Operator has utmost safety because he keeps foot on accelerator at all times. Visibility is excellent all-around. Power-boosting makes steering easy.

Goes anywhere at 27 mph

After the Michigan finishes cleanup here, its next call may be to another shovel, to the dump, or to clear debris from the haul road. Wherever the call, it gets there about as fast as the trucks. Top speed of 27 mph takes it half a mile, across tracks, hard-surfaced roads and trails in 1 to 2 minutes. Oscillating steering axle keeps both rear wheels in firm contact with the ground at all times. With 14½ inches of clearance, operator practically never gets hung up. And rear-wheel steering greatly reduces tire wear.

See it in action

The best way to analyze the advantages of 27 mph speed, power-shifting, and full-time four-wheel traction is to do what Consolidated Copper did—*test* a Michigan Tractor-Dozer, with your own operators, in your own pit. You pick the work . . . then time cycles, measure output, compare price per yard of dozing capacity (don't forget Michigan's f.o.b. price includes power-shift transmission, 3-to-1 torque converter, planetary wheel axles, and power-tilt blade . . . you don't have to pay for "extras" to get top efficiency).

Michigan is a registered trade mark of

CLARK EQUIPMENT COMPANY
Construction Machinery Division
2481 Pipestone Road
Benton Harbor 47, Michigan

CLARK® EQUIPMENT

"500" means up to 500 work hours between lubrications from new CAT* rollers. Add up the savings in service time and labor costs this feature gives you! Available for Caterpillar D7, D8 and D9 Tractors, the Cat "500" Roller also features large load carrying bearings, deep hardened *forged steel* rims, selectively hardened shafts and special long-lasting seals. Other makes of rollers may look like originals, but can you trust them? Be sure to get parts you *know*—from your Caterpillar Dealer.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

CAT PARTS YOU CAN TRUST

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OBITUARIES

(Continued from page 40)

Sand and Gravel Association in 1924. In the 1930's Mr. Prince was a member of the Mineral Aggregate Section of the National Recovery Administration (N.R.A.) Code Authority.

Glenn C. Cook, American Builders Supply Co., Louisville, Ky., died while en route to the recent convention of the National Ready Mixed Concrete Association in Los Angeles, Calif. He was scheduled to give a speech on "Practical Problems in the Installation and Operation of Industrial Radio." His speech was read to the members by Kenneth E. Tobin, Jr., associate executive secretary of the Association.

Walter Hugus Gaither, Jr., general manager of the Green Bag Cement Division of the Pittsburgh Coke and Chemical Co., Pittsburgh, Penn., died March 19. He was 53 years old. Born in Pittsburgh, Mr. Gaither attended Harrisburg Academy Preparatory School and graduated from the University of Pittsburgh management course. He also attended Lehigh University, Bethlehem, Penn. Mr. Gaither joined Pittsburgh Coke and Chemical Co. as a cement sales representative in 1939, was appointed acting manager of the Green Bag Cement Division in 1953, and one year later was named general manager.

Jacob S. Coxey, Jr., retired founder, president and chairman of the board of the Industrial Silica Corp., Youngstown, Ohio, died March 19 in Hollywood, Fla., where he had been living the last two years. He was 65 years of age and had retired in 1954. Mr. Coxey was the son of the late Gen. Jacob S. Coxey, who led a march on Washington, D.C., in 1894 in support of his campaign for economic reforms.

(Continued on page 46)

MEET SIZING SPECS

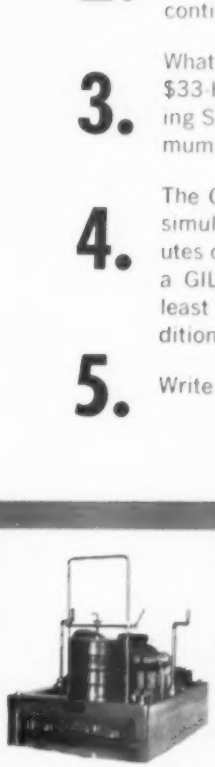
1. The GILSON Testing Screen is the standard sizing control of the industry. Engineers specify it. Contractors use it to check aggregates at the job site.

2. Progressive producers have been using the GILSON Screen for fifteen years. It's fast and accurate. It takes a beating, stays fast and accurate after years of hard, continuous use.

3. What about you? Are you going to get your share of the $33-billion highway program? With the GILSON Testing Screen you'll meet sizing specifications with minimum time, labor, and cost.

4. The GILSON Screen makes two to seven separations simultaneously — 4-inch to 200-mesh — in five minutes or less per complete test. Field reports show that a GILSON Screen purchased now will serve you at least ten years under the most severe operating conditions, and with practically no maintenance.

5. Write for complete information. Do it now.



A sand attachment for handling 8-inch sieves is optional with the GILSON Screen.

GILSON SCREEN CO.

MALINTA, OHIO

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Portable A-W plant producing base material for large state highway job near Los Banos, California.

AUSTIN-WESTERN Crushing Plant produces rock at low cost for Richards-Underdown Co., Fresno, Cal.

High output and low cost—that's the story on the Austin-Western 101-S Crushing Plant working for one of the biggest producers in the San Joaquin Valley. Despite its large capacity, it can be moved easily and fast from job to job.

In the operation shown above, feed material is scalped ahead of the crushing plant to remove fines and produce minus $1\frac{1}{4}$ inch material. Feed over the scalper goes to the primary crusher, which has a 1036 jaw. It then passes into the big 30 x 20 inch roll crusher, which turns out a $\frac{3}{4}$ inch plant-mix material. The plant has three conveyors, which deliver sand and road-base material in sizes of 1 inch and minus $\frac{3}{4}$ inch.

The plant is powered by a 62.5 kva generator, driven by a diesel engine. The individual motors operate the conveyors and the scalping screen through short-coupled V-belts—there are no idlers, clutches, etc., to cause mechanical loss. The crushing plant itself is direct-diesel-driven by a propeller shaft. A single convenient push button station controls the entire closed-circuit system.

There's a high-speed, profit-making Austin-Western Plant exactly right for your needs. Call on your nearest distributor for full information. Or write Construction Equipment Division, Baldwin-Lima-Hamilton Corp., Lima, Ohio.

COMPARE—AND YOU'LL WANT AN AUSTIN WESTERN CRUSHING PLANT

1. *Welded steel plate frame for high strength without weight of cast steel frame.*
2. *Machined steel toggle plate for absolute protection, instead of cast iron.*
3. *Inclined positive-throw-type vibrating screen.*
4. *All moving screen parts operate in rubber bushings that need no lubrication.*
5. *Dual rear wheels for added stability; fully enclosed brakes on rear tandem.*
6. *Oversize self-aligning spherical bearings in crusher.*
7. *Heat treated chrome vanadium steel shaft in crusher.*

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

AUSTIN-WESTERN
CRUSHING, SCREENING AND WASHING EQUIPMENT

BALDWIN BLH LIMA-HAMILTON

BALDWIN-LIMA-HAMILTON
Construction Equipment Division — LIMA WORKS

OTHER DIVISIONS: Austin-Western • Eddystone • Electronics & Instrumentation
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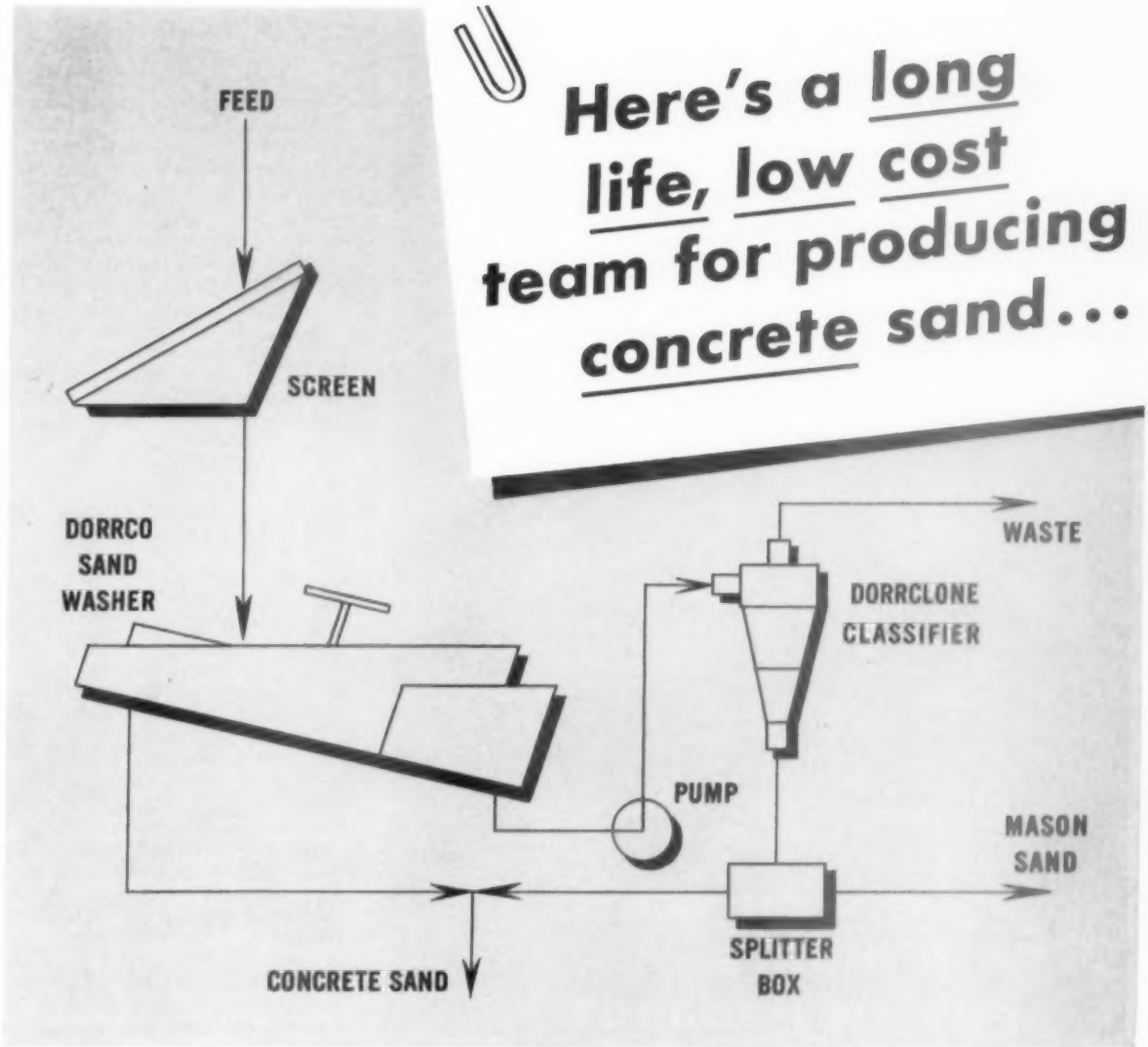
Here's a long life, low cost team for producing concrete sand...



Meeting the increasingly rigid specifications for concrete sand can be a big headache for the small to medium size producer. But with the proven Sand Washer-DorrClone classifier team, product control is possible without expensive preparation equipment. Here's how it's done . . .

Pit feed, after being screened, is introduced to the Dorrco Sand Washer. A rugged, high-capacity machine, the Sand Washer can handle up to 150 tons per hour. If the intermediate sizes are in balance, Sand Washer underflow is finished product. But where product control is necessary, the DorrClone classifier is added to the flowsheet. Here, minus 100 mesh sand is recovered from the Sand Washer overflow and blended as required with Sand Washer underflow. The result: controlled specification sand at a low investment and operating cost.

For more information on how this team can go to work for you, write Dorr-Oliver Incorporated, Stamford, Connecticut.

DorrClone T. M. Reg. U. S. Pat. Off.

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INCORPORATED
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STAMFORD • CONNECTICUT • U.S.A.

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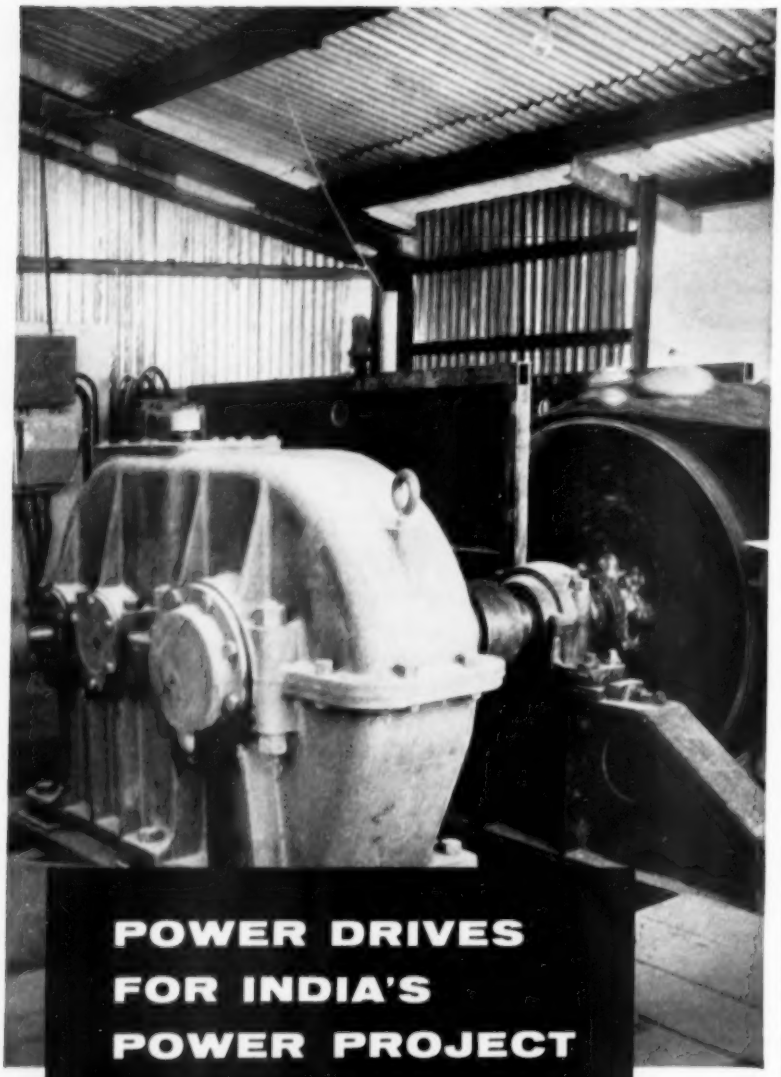

India is harnessing the mighty Sutlej River with the $125 million Bhakra Dam to provide power and irrigation for the Punjab area. Twenty-five Jones Herringbone Speed Reducers drive 51 Hewitt-Robins belt conveyor units used to carry aggregate over three miles of extremely rugged terrain and two miles through processing operations.

Jones Power Drives were specified because their quality construction assured continuous operation. To find out how Hewitt-Robins products and services can help you, consult your classified telephone directory for the nearest Hewitt-Robins representative, or contact Hewitt-Robins, Stamford, Conn.

HR HEWITT-ROBINS

CONVEYOR BELTING AND IDLERS . . . POWER TRANSMISSION DRIVES
INDUSTRIAL HOSE . . . VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

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OBITUARIES

(Continued from page 43)

Harold J. Layden, sales manager of the Kansas City, Mo., office of Universal Atlas Cement Co., New York, N.Y., died suddenly on March 12 shortly after registering with his wife at a hotel in Oklahoma City, Okla. A native of Davenport, Iowa, where he graduated from St. Ambrose College and attended Brown's Business College, Mr. Layden joined Universal Atlas in 1926 as salesman in the Chicago office. In 1945, he was made district sales manager at St. Louis and in 1948 became sales manager at Kansas City, Mo.

J. Edwin Sweitzer, retired general sales manager of the Alpha Portland Cement Co., Easton, Penn., died March 25 at his home in Phillipsburg, N.J. He was 66 years old and had retired in April, 1956. Born in Easton, Mr. Sweitzer joined the sales department of Alpha in 1914. In 1940 he was named assistant to the vice-president and general sales manager, and in 1953 he was appointed general sales manager.

William L. Schwan, concrete block manufacturer in Milwaukee, Wis., for 48 years, died March 4 at the age of 89. Born in Kekoskee, Wis., Mr. Schwan moved to Milwaukee in 1898 and started the concrete block business, retiring 10 years ago. A son, Herbert A. Schwan, now operates the business.

William G. Donovan, vice-president of the Capitol Concrete Products Co., Schenectady, N.Y., died suddenly on March 27. Mr. Donovan was also vice-president of the Northern Concrete Pipe Corp. and sales manager of the Cushing Stone Co., Schenectady, N.Y.

B. B. Barrell, founder and director of the Alresford Sand and Ballast Co. Ltd., near Colchester, Essex, England, died recently after an illness of two years. He was 73 years old and had been in the sand and gravel industry since 1931.

Jasper Leonard Hershey, retired superintendent of The Sidney Sand and Gravel Co., Sidney, Ohio, died March 8. He was 77 years of age and had been associated with the company for 30 years.

Daniel J. Boylan, president of the Boston Sand and Gravel Co., Cambridge, Mass., died March 6. He was 73 years of age.

END

"With our EAGLE MATERIAL WASHING AND CLASSIFYING SET UP, *we're prepared for all comers"*, SAYS MOONEY BROS. SUPPLY CO., NEW CASTLE, PA.

Mooney Bros. Supply Co., established in 1925, requires a variety of aggregates for their own operations and for contractors and road builders in the area. They operate their own fleet of 12 ready-mix concrete trucks a concrete block plant, and hot or cold bituminous concrete plant. They also operate a quarry and do excavating and trucking.

1872 85th anniversary 1957

To meet their requirements for various specifications of sand, gravel or aggregate the six Mooney brothers depend on an EAGLE Washing-Classifying-Dehydrating Section at their sand and gravel plant. It consists of a 20' Water Scalping-Classifying Tank with Power-Operated Bleeder Valves and a 3-Cell Collecting-Blending Flume and two Single Screw Fine Material Washer-Classifier-Dehydrators; each handling a different gradation. With this set up they are prepared for all comers, they report.

EAGLE has long specialized in aggregate processing equipment—Eagle has the broadest line of equipment to meet every need. You can profit from Eagle's experience. There's an Eagle factory-trained distributor nearby to serve you.

SEND FOR CATALOG AND NAME OF USER NEAR YOU!

The EAGLE LINE

EXPERIENCE, PROGRESS, SERVICE, SINCE 1872

EAGLE IRON WORKS

137 HOLCOMB AVE., DES MOINES, IOWA

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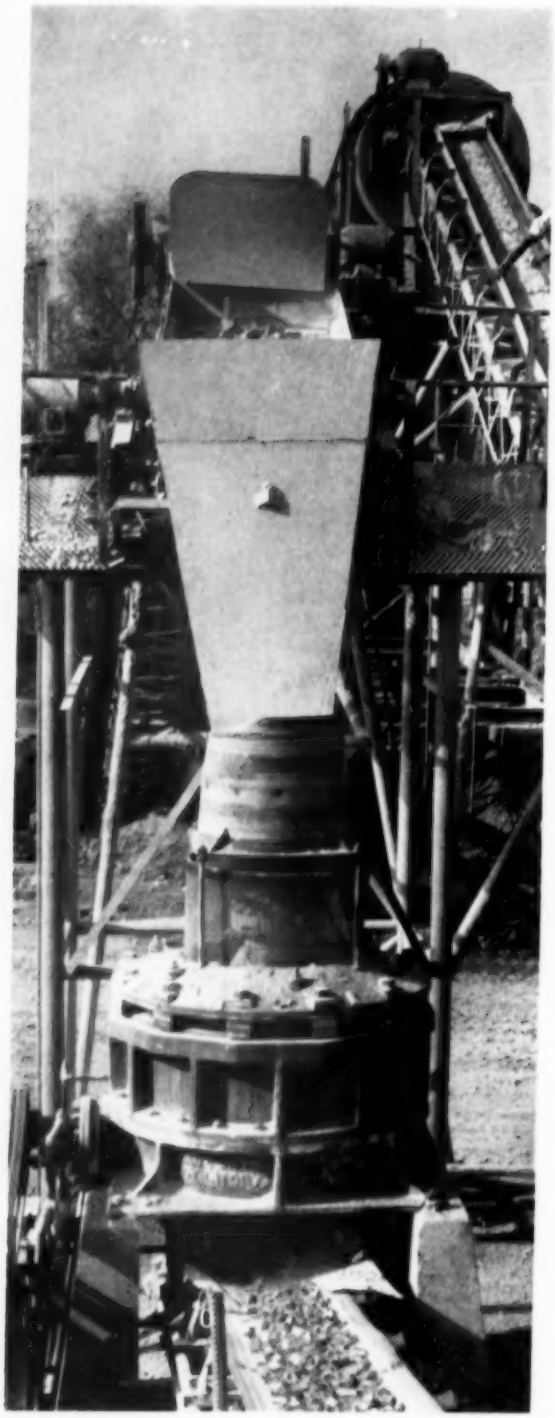
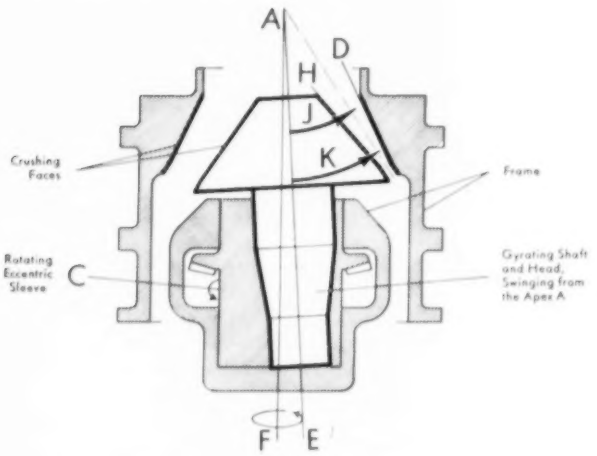


Reduction to uniformly fine product more economical with

KUE-KEN® GYRATORY CRUSHER

Kue-Ken is designed for low head room and choke feed so that this economical method of reduction can be adapted to most any flow sheet. It is the only gyratory crusher that operates on the "crushing without rubbing" principle that eliminates the main cause of liner wear. Kue-Ken liners give prolonged, trouble-free service under continuing, hard-materials crushing. This exclusive design also speeds crushing, increases capacity and economizes on power. Though exceedingly strong, Kue-Ken is sufficiently compact and light that it may be used in either a permanent or portable installation.



Kue-Ken crushes without the upward abrasive action that quickly wears out liners on ordinary crushers. See how crushing faces above pass through zone on arcs J and K to crush rock squarely. Only Kue-Ken operates on this principle.

"CRUSHING WITHOUT RUBBING" LENGTHENS LINER LIFE

WRITE FOR CATALOG

KUE-KEN® CRUSHERS

"CRUSHING WITHOUT RUBBING"

STRAUB MFG. CO., INC., 8380 BALDWIN, OAKLAND 21, CALIF.

Jaw Crushers Gyratory Crushers Overhead Eccentric Crushers Revolving Screens Classifiers Feeders Rib Cone Ball Mills Concentrating Tables Vibrating Screens

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DENVER, COLO.	Union Supply Co.
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VANCOUVER, B. C.	Universal Equipment Co.

Pennsylvania Crusher Division, Exclusive Licensed Eastern Manufacturer and Distributor, 323 S. Matlack St., West Chester, Penn.

Armstrong Whitworth (Metal Industries) Ltd., Authorized Licensed Manufacturer and Distributor, Close Works, Gateshead-upon-Tyne 8, England

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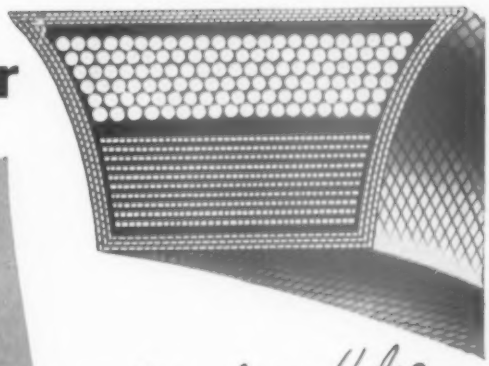
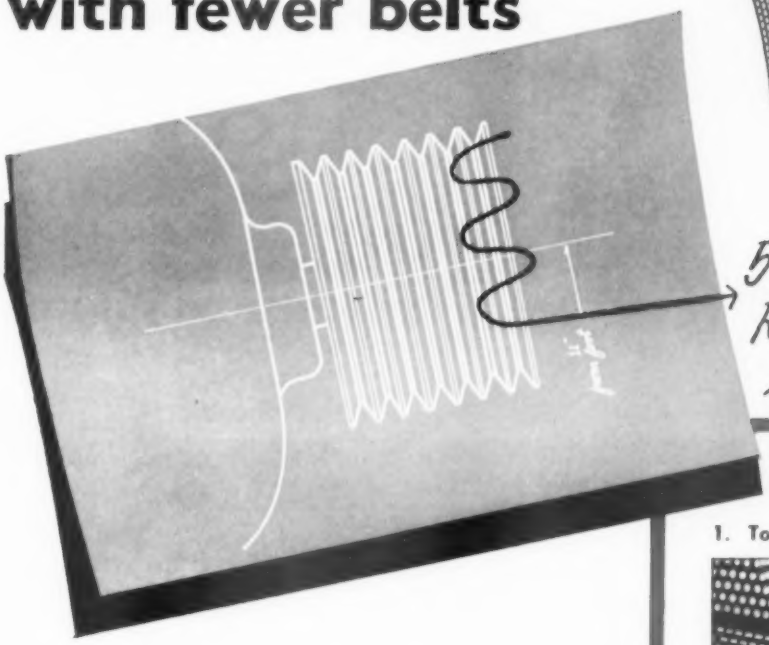
Cut sheave width and weight...

get same horsepower with fewer belts





5 Gates Super Vulco Ropes do the work of 7 standard V-belts

Where space is limited and weight a factor, design your drive with this important fact in mind:

5 Gates Super Vulco Ropes do the work of 7 standard V-belts

That's because a Gates Super Vulco Rope has 40% more horsepower capacity — delivers more horsepower per dollar invested than any standard V-belt drive. Sheaves with fewer grooves cost less . . . weigh less . . . take less room. Drive design is invariably improved.

A wealth of drive data is quickly available to you. Simply call your nearby Gates distributor for a Gates V-belt specialist. Stocks carried in industrial centers around the world.

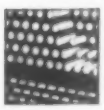
The Gates Rubber Company
Denver, Colorado

GATES Distributors are in the Yellow Pages

The Mark of Gates *Specialized* Research

No other V-Belt has ALL these advantages

1. Tough, resilient Tensile Cords

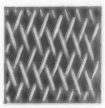


Super strong resilient tensile cords provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . . reduce number of belts required . . . save weight and space.

2. Concave Sidewalls (U.S. Pat. 1813698)

Concave sides (Fig. 1) increase belt life. As belt bends, concave sidewalls become straight, making uniform contact with sheave groove (Fig. 1-A). Uniform contact means less wear on sides of belt . . . far longer belt life.

3. Flex-Weave Cover (U.S. Pat. 2519590)



A Gates exclusive: provides greater flexibility with far less stress on fabric. Cover wears longer . . . increases belt life . . . more power available to driven machine.

4. High Electrical Conductivity

Built into Gates Super Vulco Ropes for safer drives (in explosive atmospheres).

5. Oil, Heat, Weather Resistant

Special rubber compounds make Super Vulco Ropes highly resistant to heat, oil, and prolonged exposure to weather.

TPA 248

Gates Super VULCO ROPE Drives

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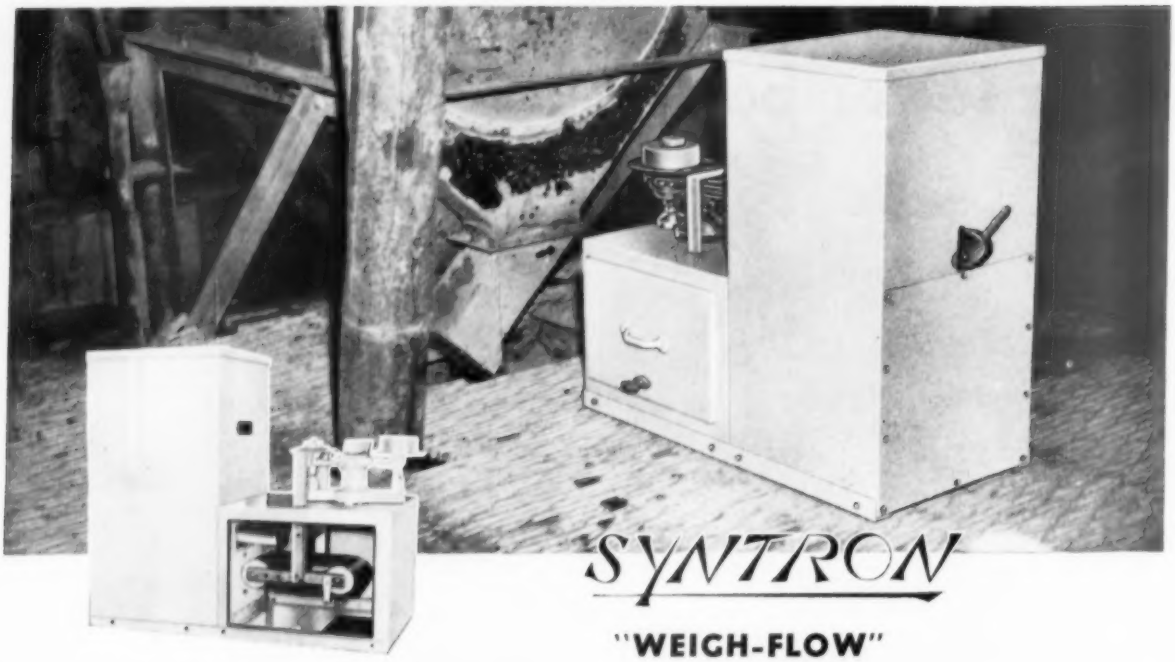
ELECTRONIC CONTROL—

the most accurate continuous weigh control yet developed



"WEIGH-FLOW"

GRAVIMETRIC FEEDERS

Automatically feed and weigh bulk materials at controlled rates

The weigh feeding of bulk materials at accurate rates will increase the capacity and efficiency of mixers, dryers, and other processing equipment and improve the uniform quality of the end product.

The Syntron "Weigh-Flow" Gravimetric Feeders are the most accurate and most dependable weigh feeding equipment available. Fully automatic, the rate of feed is controlled electrically by the load on a scale—suspended, constant speed conveyor belt. The scale automatically corrects any variation in load on belt to an accuracy possible only with Electronic weigh control.

Syntron Weigh Feeders are built for long, continuous, trouble-free service. They are simple, and functional in design, keeping moving parts at a minimum. This means low cost maintenance. Syntron Gravimetric Feeders are available in a standard range of styles and sizes with capacities from ounces to 100 tons per hour.

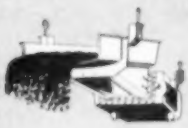
Builders of Quality Equipment for more than a Quarter-Century.

Other SYNTRON Equipment of proven Dependable Quality

VIBRATING SCREENS

TEST SIEVE SHAKERS

VIBRATORY FEEDERS



AC TO DC POWER CONVERSION UNITS

Write for complete equipment catalogue—FREE

SYNTRON COMPANY
450 Lexington Ave. Homer City, Penna.

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Euclid tractors and scrapers

lower stripping costs for mines and quarries

Tremendous power, speed and maneuverability make the 436 h.p. Euclid TC-12 Twin-Power Crawler a top performer in heavy duty mine and quarry work. No other tractor matches it for low cost production in stripping overburden, clearing, stockpiling, building haul roads and other big tractor jobs.

Euclid scrapers have struck capacities from 7 to 24 cu. yds. with engines ranging from 143 to 518 h.p. The complete line, including both two axle and three axle models, has hydraulic lever action that eliminates down-time caused by cable breakage. Good maneuverability and fast travel speed reduce cycle time . . . help move more loads and more yards for lower cost stripping operations.

Check the many advantages of "Eucs" for your operation . . . have a Euclid dealer show you why ***Euclids are your best investment.***

●

EUCLID DIVISION, GENERAL MOTORS CORP., Cleveland 17, Ohio

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

EUCLID

Photo courtesy Iowa Manufacturing Company

MORE POWER FOR PRODUCTION

through better lubrication

BETTER LUBRICATION means increased production and efficiency in every operation. That is why leading contractors choose—and stick to—world-famous Texaco brands.

For example, *Texaco Ursa Oil Heavy Duty* helps get *full* power from diesel and heavy-duty gasoline engines. It assures full compression and complete combustion because it prevents harmful deposits, keeps rings and valves free, and protects vital parts against corrosion and wear. As a result, you use *less fuel* . . . get *longer periods between overhauls* . . . *save on maintenance costs.*

Texaco Ursa Oil Heavy Duty is one of a complete line of *Texaco Ursa Oils* for diesel and heavy-duty gasoline engines.

Use *Texaco Regal Oil R&O* in hydraulic mechanisms to prevent rust, sludge and foam. You'll get smoother operation—cut maintenance costs.

And use *Texaco Crater* or convenient *Texaco Crater X Fluid* for wire rope and open gear lubrication. They keep rope strong longer, greatly extend gear life.

A Texaco Lubrication Engineer can help you get maximum efficiency from all your equipment. To contact him, just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, New York.

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

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INDUSTRY NEWS

Cover Picture

A FULL PANEL OF ELECTRONIC instruments at the new Milwaukee plant of Marquette Cement Manufacturing Co. is featured on the cover of this issue of ROCK PRODUCTS. This panel, designed by Allis-Chalmers Mfg. Co., gives the operator close supervision and automatic control over all the complex reactions and heavy machines involved in the complex cement-making process.

Push buttons start and stop all motors; indicating dials show how all mechanical equipment is operating; recording controls maintain a record of the operating temperatures and pressures for later analysis and a group of monitoring controls warn the operator of any changes in operating conditions.

Erects Aglite Plant

SAYRE & FISHER BRICK CO., Sayreville, N.J., has constructed as part of its diversification program a $1-million plant for production of Aglite, lightweight aggregate. The plant is comprised of two sintering units with a total capacity of 1,500 cu. yd. per day. Loading facilities permit shipment via rail, water and truck.

Sayre & Fisher Sand Co., a division of Sayre & Fisher Brick Co., was put into operation during the last quarter of 1956. The plant, located off the Garden State Parkway, near South Amboy, was engineered and installed by Western Knapp Engineering Co., New York.

Florida Rock Plant Opens

A MILLION-DOLLAR rock-crushing plant capable of turning out 3,000 tons of crushed limestone per day has opened north of Richmond airbase in Florida. The Oolite Crushed Stone Co. is headed by a group of Miami industrial and financial leaders. President of the new firm is Willard C. Webster; E. N. Belcher is chairman of the board.

Great Lakes Merges Divisions

GREAT LAKES CARBON Corp. has consolidated its Dicalite and Perlite divisions into the newly organized Mining and Mineral Products divisions. Dicalite and its Palos Verdes Stone department, and the Perlite division and its Strata Products department each have been given the status of departments in the Mining and Mineral Products division. D. Loring Martlett, vice-president of the firm and formerly general manager of the Dicalite and Perlite divisions, has been named general manager of the Mining and Mineral Products division. Joseph E. Moran, formerly assistant general manager of the Dicalite division, now fills that position in the new division.

Conveyor Belt Spans River

BASIC CONSTRUCTION MATERIALS of Chillicothe, Ohio, having purchased a gravel deposit on the opposite side of the Scioto River from its plant, is building a conveyor belt on a suspension bridge to carry material across to be processed.

South to Get Sand Plant

WHITEHEAD BROTHERS CO. of New York announced Tuesday it will build one of the largest plants of its kind in the South to produce fine quality silica sand, in Kershaw County, S.C. The new plant will be between Columbia and Camden, and sand for processing will be mined on the site.

Opens New Office Building

NEW HEADQUARTERS for Medusa Portland Cement Co. were opened March 1 in Cleveland Heights, Ohio. The modern office building at Lee and Monticello Blvds. is of lift slab construction, with green precast panels forming the walls. Medusa general offices were formerly in the Midland Building, Cleveland.

RR Buys Ballast Mountain

THE CHICAGO AND NORTH WESTERN railroad has announced the purchase of a "small mountain" of pink rock in south central Wisconsin to assure itself an adequate supply of high quality track ballast. Clyde J. Fitzpatrick, president, said the site holds sufficient quartzite rock to produce 30 million cubic yards of ballast — enough to meet the railroad's requirements in the foreseeable future. The bluffs that contain the rock are adjacent to the railroad's main line at Rock Springs, Wis. Plans are made to have a quarry in production by late summer.

Pavement Yardage

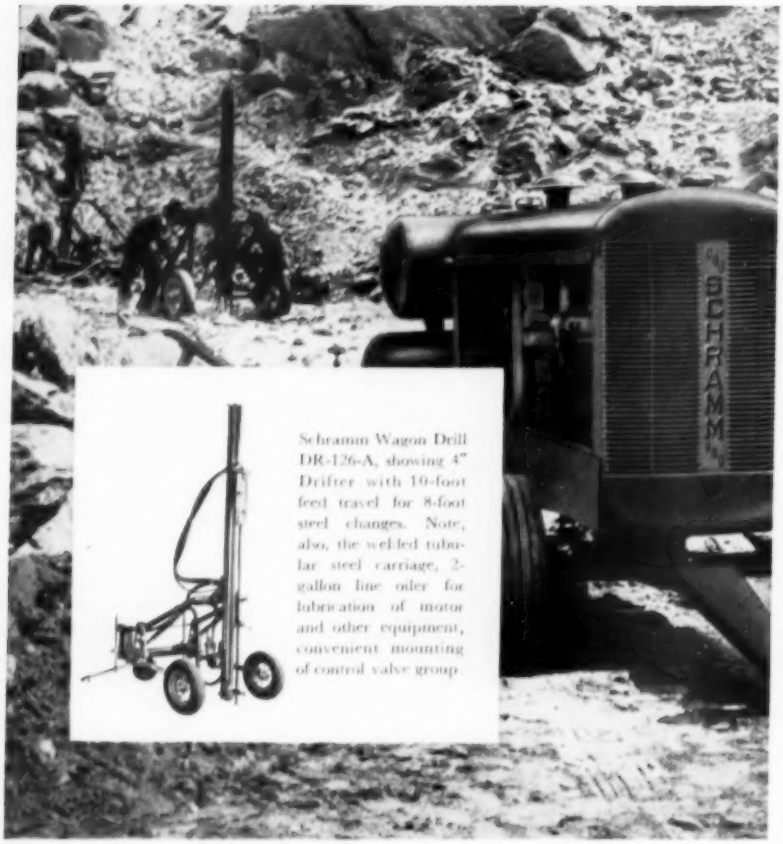
AWARDS OF CONCRETE pavements for the month of February, 1957, and total awards for the first two months of 1957 as shown by the Portland Cement Association are listed in the following table:

	Sq. yd. awarded during	
	February	First 2 mos.
Roads	4,424,912	8,414,795
Streets & Alleys	1,315,520	2,989,848
Airports	1,488,726	2,987,597
Totals	7,229,158	14,392,240

Riverside Adds Lab

THE RIVERSIDE CEMENT CO. has added a new lab and office building to its holdings at Oro Grande, California. The two story structure, designed by Allison & Rible of Los Angeles, contains laboratory and testing facilities and an engineering office as well as the accounting, personnel and administrative departments. Of lift slab construction, the building embodies several of the latest advances in concrete architecture.

(Continued on next page)



Schramm Wagon Drill DR-126-A, showing 4" Drifter with 10-foot feed travel for 8-foot steel changes. Note, also, the welded tubular steel carriage, 2-gallon line oiler for lubrication of motor and other equipment, convenient mounting of control valve group.

NEW, IMPROVED WAGON DRILL . . .

Drills faster with fewer steels

Fewer delays while steels are being added. Faster drilling on every job. That's what you get with the new, redesigned Schramm DR-126-A Wagon Drill. This brand-new model is a guaranteed time-saver, improved in a dozen ways—bigger, handier, more powerful.

DR-126-A mounts the tried and proved 4" drifter with 10-foot feed travel for 8-foot steel changes. This is a new feature, replacing the previous 8-foot travel for 6-foot steels. As a result, drilling time between changes is extended; you drill faster with fewer delays.

Other improvements in the new Schramm Wagon Drill include: a double cylinder, seven blade air motor and chain drive to saddle for down pressure. Motor has high torque and very even running, with 14 impulses per revolution. Infinite feed pressure control is provided by throttling the air supply. Feed chain has convenient take-up. "Centralizer" at the lower end of the air shell keeps the drill from walking when starting hole.

Fastest and most maneuverable of all wagon drills, Schramm DR-126-A can be seen at your local Schramm dealer. Ask him for a demonstration or write for new Bulletin WDR-126-A and free booklet, "Piston vs Rotary Air Compressors."

Schramm Truck Mounted Wagon Drills, Drifters and Wagon Drills provide a complete line of drilling tools. Swivel mountings of air shells permit drilling at any angle, or vertically on a slope or hillside.

Your local Schramm Dealer is listed in the Yellow Pages of your telephone directory.

Schramm, Inc.

MANUFACTURERS OF AIR COMPRESSORS

645 North Garfield Avenue
West Chester, Penna.

Enter 1093 on Reader Card

INDUSTRY NEWS

(Continued from preceding page)

Build Latin Cement Mills

PLANS HAVE BEEN announced for new Central and South American cement mills, each valued at over $1,000,000, with Allis-Chalmers Manufacturing Co. supplying all of the major equipment. Both plants are expected to be in operation by 1958.

Cementos de Honduras, S.A., a 150-metric-ton-per-day wet process plant, will be the country's first cement mill and its first major industry. It will be located at San Pedro Sula, Honduras, which is in a limestone deposit area. The second plant, Cementos del Sinu, S.A., Barranquilla, Colombia, is a 300-metric-ton-per-day wet process mill being built at Planeta Rica in the interior of Colombia. Allis-Chalmers is supplying all kilns, crushers, grinding mills, screens, coolers, and feeders, plus related motors and drives for Cementos de Honduras, and motors and switchgear for Cementos del Sinu.

Seaway One-Third Done

THE ST. LAWRENCE SEAWAY Development Corporation has announced that the American portion of the project is about one-third completed. The figure is based on contractors' earnings and government costs through February 1957.

Construction Slump To End

ENGINEERING NEWS-RECORD and **Construction Daily** report indications that the slump in private heavy construction contracts will end soon. Down 43 percent from last year's pace, private awards are expected to turn upward within the next month or so, due to a sharp rise in new projects now in the planning state. Construction borrowers are finding competition for new capital less keen now than a year or even six months ago. Commercial building has already risen from 72 percent below last year's record to 26 percent below. Industrial awards are soon to be lifted by a wave of new plants entering the planning stage last year and ready to go now. March mass housing contracts rose, the first uplift in five months.

Leases Rock Quarry

LOCKWOOD ROCK PRODUCTS CO., Lockwood, Mo., has begun operations on land leased from the city of Lockwood by Lyle Allen, formerly of Hopkinton, Iowa.

(Continued on page 56)

Only 6 hours down time in 3 years

THIS is Clint Freyenhagen's second CAT* D4 Tractor. "My first D4 had only six hours down time in three full years of operation," he says. "I found it to be a quality machine and a profitable producer in all types of work. I'm really sold on the D4." The Caterpillar D4 Tractor is working in a slate quarry near Brattleboro, Vermont.

From its specially hardened track shoes and pins to its rugged, 63 HP (flywheel) Caterpillar Diesel Engine, the new D4 is built to outwork and outlast any other tractor in its class. It is available with Caterpillar's optional oil clutch, which prolongs facing life and greatly lengthens the period between clutch adjustments. The Caterpillar-built Bulldozer is available with straight or angle blade to suit your operation and is of heavy-duty construction to stand up to 'dozer-busting work around rock.

The D4's Caterpillar Diesel can deliver full power and idle without fouling on money-saving, non-premium fuel, thanks to its exclusive, single-orifice fuel injection system. And, because of four-cycle design, there are no air boxes or cylinder ports to clean. Even in a severely dusty quarry, highly effective filters and seals keep lubricants in and harmful abrasive particles out of engine and running parts.

The D4 is compact and maneuverable, yet able to do a man-size job without pampering or down time. Your Caterpillar Dealer will gladly arrange an on-the-job demonstration. He has facts and figures to prove to you that the Caterpillar D4 Tractor is built to do *more* work at *less* cost on *your* job than any other crawler its size. See him today. And count on him whenever you need prompt, skilled service and parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

You need Pangborn DUST Control in your plant!

Processing operations in a plant often release dust that settles on floors, walls and equipment. This dust hampers the efficiency of men and machines and makes plant housekeeping a continuing, costly burden.

Pangborn Dust Control stops that. Pangborn Collectors trap dust at the source, clean so thoroughly that in the winter many firms cut heating costs by recirculating the already-heated, cleaned air.

In addition, Pangborn gives you the bonus benefits of longer machinery life, more efficient employees, better employee and community relations and extra profits from any salvage value. Complete line of collectors for all jobs.

Discover how *you* can profit from Pangborn Dust Control—write for Bulletin 922. PANGBORN CORP., 4300 Pangborn Boulevard, Hagerstown, Maryland.

Pangborn CONTROLS DUST

Enter 1065 on Reader Card

INDUSTRY NEWS

(Continued from page 54)

A.I.M.E. Reorganizes Setup

FOLLOWING ACTION TAKEN at its recent annual meeting in New Orleans, the American Institute of Mining, Metallurgical, and Petroleum Engineers (A.I.M.E.) has put its activities on a new basis. The units previously known as the Mining, Metallurgical and Petroleum Branches of A.I.M.E. have become the Society of Mining Engineers of A.I.M.E., the Metallurgical Society of A.I.M.E. and the Society of Petroleum Engineers of A.I.M.E. Though each society has its own officers and administrative setup, all three remain under control of the A.I.M.E. board of directors.

Each of the three groups, in rotation, will name the A.I.M.E. national president for one year. The current president is Grover J. Holt, of Ishpeming, Mich., general manager of the Cleveland-Cliffs Iron Co. The secretary is Ernest O. Kirkendall. Headquarters of A.I.M.E. and the mining and metallurgical societies are in New York, and petroleum headquarters continue in Dallas.

Elmer A. Jones, first president of the Society of Mining Engineers of A.I.M.E., is manager of the Southeast Missouri Division, St. Joseph Lead Co., in Bonne Terre. The new post of past president of the mining society is held by Will Mitchell, Jr., of Milwaukee, assistant research director of Allis-Chalmers Mfg. Co. Arnold Buzzalini is secretary. The president of the Metallurgical Society is John C. Kinnear, Jr., of McGill, Nev., general manager of Nevada Mines Division, Kennecott Copper Corp. Vice-president is Walter R. Hibbard, Jr., of Schenectady, N.Y., W. Shearman is secretary-treasurer. President of the Society of Petroleum Engineers is John P. Hammond, assistant general superintendent of Amerada Petroleum Co., Tulsa.

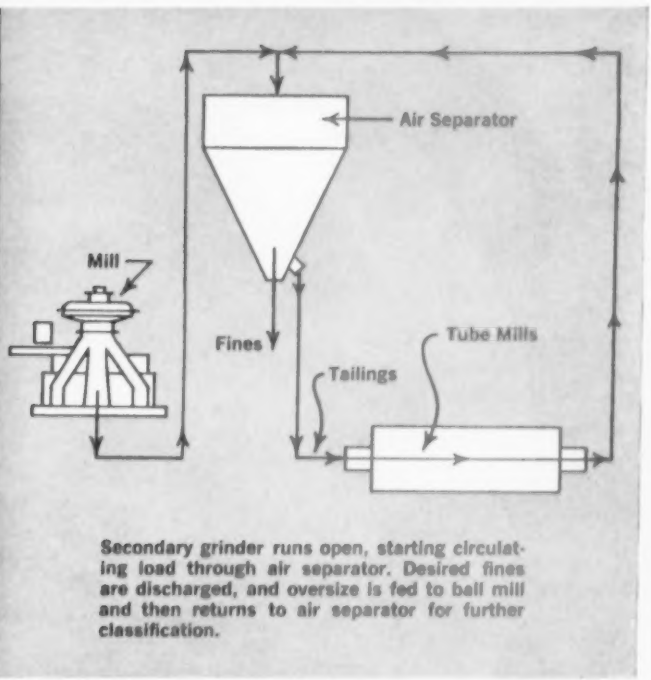
Correction

SYNTHETIC MICA CORP., Caldwell, N.J., produces a synthetic mica which is sold under the trade mark Synthamica. The registered trade mark Supramica is applied to the ceramoplastic material manufactured by Mycalex Corp. of America, Clifton, N.J. This material comprises Synthamica synthetic mica bonded by high quality electrical glass. The products Supramica and Synthamica were incorrectly identified in What's Happening, ROCK PRODUCTS, March, 1957, p. 13.

(Continued on page 60)

Stop Overworking Grinding Mills

FEED SPOUT
Sturtevant Air Separators come in 9 models, diameters range from 3 to 18 ft.
TAILINGS DISCHARGE
FINES DISCHARGE



Secondary grinder runs open, starting circulating load through air separator. Desired fines are discharged, and oversize is fed to ball mill and then returns to air separator for further classification.

LET STURTEVANT AIR SEPARATION HELP YOUR SYSTEM PRODUCE UP TO 300% MORE 40 TO 400 MESH FINES — CUT POWER COSTS AS MUCH AS 50%

Fines that pass through grinding mills unhindered, serving only to increase the work load, can be quickly classified by a Sturtevant Air Separator operating in closed circuit. With all oversize automatically returned for further grinding, the result is production capacity impossible to achieve in single-pass grinding — as well as a better, more uniform product.

Closed circuit grinding and air separation is of proved advantage in *all* secondary reduction processes. Grinding mills are free to perform at top efficiency, their output frequently increased as much as 300% and power costs cut up to 50% (documented by 30 years of Sturtevant air separation experience in the cement industry). Further, attritional heat is dissipated by greater surface exposure.

Sturtevant Air Separators Keep Grinding Units At Peak Efficiency — Classify Feed Loads to 800 Tons Per Hour

Sturtevant Air Separators circulate production loads with exact control of air currents and centrifugal force. Simple adjustments make possible counter-action between the two to the point where a product of almost any desired fineness may be collected while coarser sizes are rejected.

A 16 ft. Sturtevant, for example, took a feed rate of 800 tph, containing only a small percentage of desired fines, and delivered 30 tph 90% 200 mesh, recirculating the oversize through the grinding circuit. (In the cement industry, Sturtevant units deliver up to 60 tph raw cement fines, 40 tph finished cement fines.)

Sturtevant's ability to engineer precise, high capacity classification for closed circuit grinding systems is the result of long experience with a wide variety of dry processes. Sturtevant designed its first air separator some 40 years ago — and has been pioneering developments in centrifugal classification ever since.

Current users of Sturtevant Air Separators include manufacturers of sulfur, soybeans, phosphate, chocolate, feldspar, sand, pigments, limestone fillers, abrasives, plasters, ceramics and cement.

Designed for precise separation of all granular materials, Sturtevant Air Separators have been adapted to other materials as well. Johns Manville, for example, uses a 10 ft. model to separate 3 to 6% undesirable rock from asbestos.

Ruggedly constructed, Sturtevant units are designed for minimum maintenance — at a Midwestern rock-crushing plant, a 10 ft. Separator operates outdoors year-round with only routine care.

For further information, request Sturtevant Bulletin No. 087. Write Sturtevant Mill Co., 102 Clayton St., Boston 22, Mass.

STURTEVANT

Dry Processing Equipment

CRUSHERS • GRINDERS • MICRON-GRINDERS
SEPARATORS • BLENDERS • GRANULATORS
CONVEYORS • ELEVATORS

Enter 1088 on Reader Card

Bull's-eye performance means more cement and fewer upsets.

HOW TO CUT FUEL COSTS
of rotary kilns

1. Measure and record *oxygen* and *combustibles* in kiln exit gases. These factors directly affect fuel costs.

2. Reduce oxygen (excess air) until a trace of unburned fuel begins to show up in the exit gases.

3. Provide the burner with a reliable combustion guide—% *oxygen* and % *combustibles* on the same chart. Then a single glance shows the burner that he is holding maximum combustion efficiency.

To increase overall kiln efficiency let a Bailey Engineer help you plan for *bull's-eye* performance . . . or for additional information write for a BAILEY KILN CONTROL FOLDER. C-11

BAILEY METER COMPANY

1039 IVANHOE ROAD • CLEVELAND 10, OHIO

In Canada—Bailey Meter Company Limited, Montreal

BAILEY METERS

Enter 1044 on Reader Card

One of three Barber-Greene Loaders owned by Laverne R. Falk of St. Ansgar, Iowa.

L. R. Falk, Iowa contractor, writes:

"Why I bought my third Barber-Greene Loader"

"We usually load a seven-ton spreader-truck in two minutes . . . handle 1500 tons in a ten-hour day. Our repair costs have been almost nil. Recently, we added a third Barber-Greene to the job.

"Our ag-lime piles are often damp, and in the winter covered with a thick frozen crust. When this material is dumped into a truck—say, three fourths of a yard at a time—it packs and is tough to remove. But our Barber-Greene Loaders pulverize lumps and crust . . . fill the truck in a loose, continuous stream that doesn't pack or clog.

"Simple operation lets our truck drivers and most of our customers' drivers easily operate our Barber-Greenes themselves."

Mr. Falk's report is typical of the 543's outstanding performance everywhere. This versatile loader moves from job to job at 15 m.p.h. . . . handles any bulk material including coal or snow . . . its hydraulically controlled swivel discharge conveyor saves valuable truck time. For loading from pits and banks and screening or scalping, Barber-Greene builds the crawler-mounted 82A. Barber-Greene Bucket Loaders are the lowest-cost method of truck-loading from stockpiles.

56-11-81

Write for literature on this cost-cutting loader

Barber-Greene BG

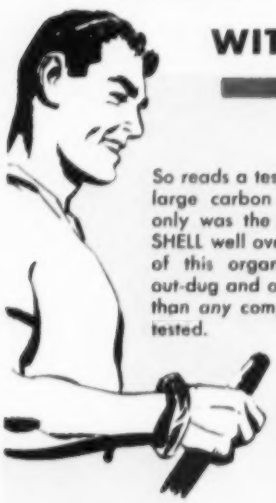
AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

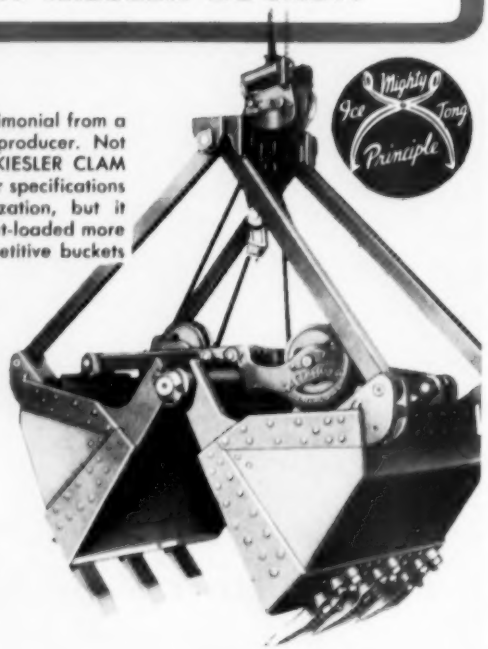
Enter 1111 on Reader Card

UNLOAD 1600 TON BARGES 46% FASTER

WITH KIESLER BUCKET!



So reads a testimonial from a large carbon producer. Not only was the KIESLER CLAM SHELL well over specifications of this organization, but it out-dug and out-loaded more than *any* competitive buckets tested.



There IS a reason: The KIESLER CLAM SHELL DEPENDS ON THE PROVEN PRINCIPLES OF LEVERAGE, NOT ON DEAD WEIGHT (COUNTER-WEIGHTS) FOR DIGGING ABILITY. The leverage of the 2-lever-arms exerts its powerful force directly to the shells and cutting edges, thus digging-in for a greater payload every time. And this maximum in power and performance is accomplished with a minimum amount of cable and reeving. The name KIESLER on your bucket is an assurance of superior performance and high-quality construction; backed up by over 64 years of bucket-manufacturing experience!

PROMPT SERVICE AVAILABLE

Factory service on Kiesler Buckets and as an accomodation on other makes, too. Whatever the problem, feel free to call on us.

GUARANTEE

Kiesler Buckets are guaranteed to outperform and do a bigger day's work than any other Bucket of equal weight, width and size, when properly reeved and operated.

JOS. F. KIESLER CO.

KIESLER
Since 1892

944 W. HURON ST. • CHICAGO 22, ILL. • MONROE 6-7144

Enter 1094 on Reader Card

INDUSTRY NEWS

(Continued from page 56)

Enlarges Operations

SUMMIT MINING CORP., Carlisle, Penn., has taken out leases on 3,000 acres of land in Adams and Cumberland Counties. Soapstone deposits will be strip-mined for processing at its Bendersville, Penn., mill. Two Hardinge No. 9 disc roll mills producing a total of 14 t.p.h. are in use at the plant, the second having been installed recently. Other facilities include an 18- x 30-in. jaw crusher, silos, underground conveyor, pulverizer, storage bin and bagging machines. Bulk material is conveyed from the plant to hopper cars by Fuller-Kinyon Airslides.

Increases Cement Capacity

AMERICAN-MARIETTA CO., Chicago, Ill., expects expanded facilities at its Roberts, Ala., cement plant to boost its capacity by 1,250,000 bbl. by June, 1957. Expanded plant facilities in Martinsburg, W. Va., Edmonton, Alta., Can., and Portland, Ore., should nearly double capacity in 1957, according to Richard Troxell, vice-president of the company.

NBS Studies Asphalts

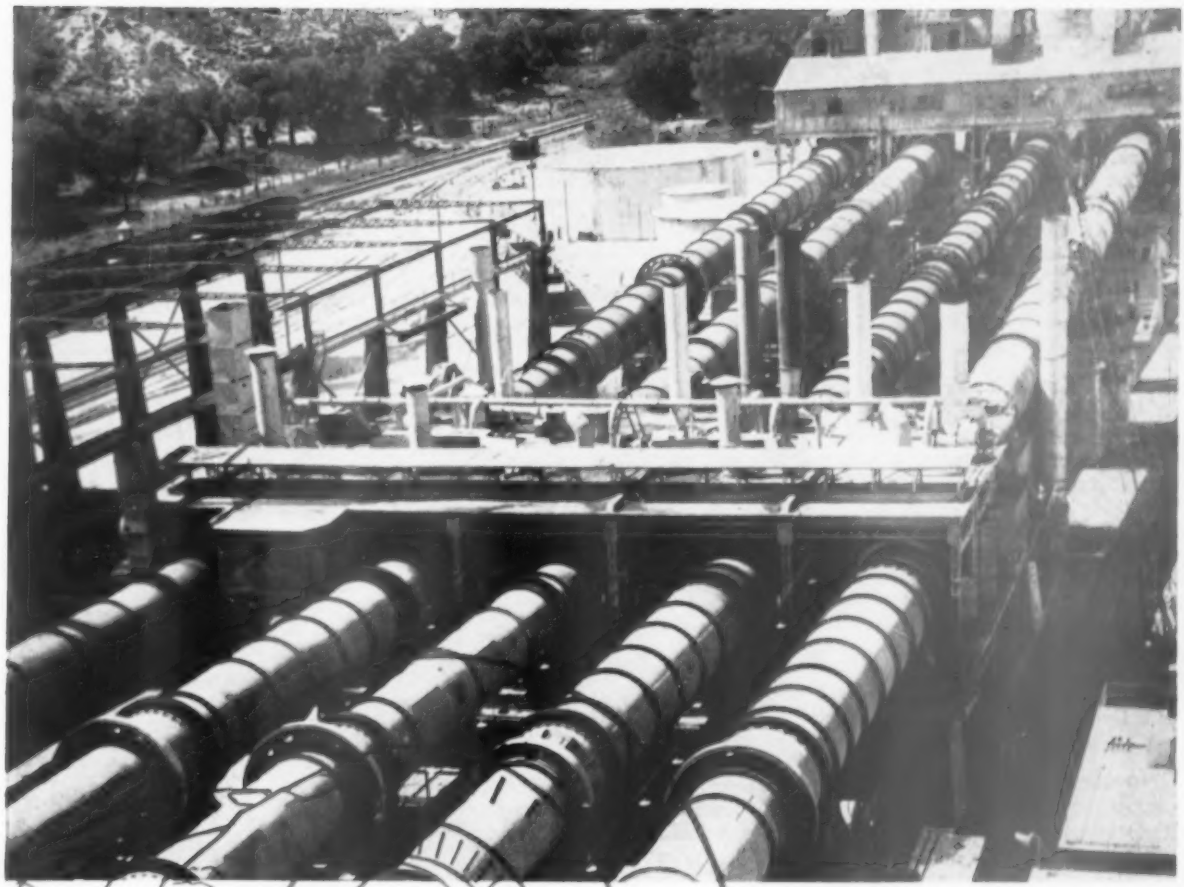
NATIONAL BUREAU OF STANDARDS has just completed a study of the weather resistance of asphalts containing finely divided mineral additives. Results indicate that additives such as mica, blue-black slate and oyster shell can significantly prolong the service life of roofing-grade asphalt. Three roofing asphalts, representative of three major sources in this country, and 14 different mineral additives were included in the study conducted by S. H. Greenfeld of the Asphalt Roofing Industry Bureau's Research Associateship at NBS.

Wins Safety Council Award

MATERIAL SERVICE CORP. has received a National Safety Council 1956 Award of Honor for company-wide achievements in safety. The company personnel reduced the frequency of accidents 43.4 percent, and severity 62.2 percent under their 1955 record low year.

The company's Lockport, Illinois, plant has already been honored with the 1956 National Safety Award for sand and gravel quarries as a result of its world safety record for the industry. The machine shop at Lockport has already more than 1,000,000 con-

(Continued on page 62)



The RIGHT Combination for Cement Kilns

We have served the cement industry with top-quality rotary kiln refractories for over 25 years; we have studied needs, the trend in improved manufacturing techniques, the processes of production—both from the standpoint of the cement manufacturer and the kiln designer—and have the *"Know-How"* to recommend confidently the correct refractory and proper method of installation.

When these MEX-R-CO products and services are used you are assured of the right combination for maximum performance:

- High Alumina Kiln Liners (ALUMEX quality in 50%, 60%, 70% and 80% Al_2O_3)
- Fire Clay Brick (Super-duty Regular and Super-duty High-burn); also High Heat Duty (both Dry Press and Stiff Mud)
- Insulating Firebrick
- High Temperature Bonding Mortar (Super-duty and Regular)
- Refractory Castables (Super-duty, High-Heat-duty, and High-Purity)
- Heat-setting Plastic Firebrick (High Alumina, Super-duty, Standard)
- Air-setting Plastic Firebrick (Super-duty)
- Nose Ring Blocks and Special Shapes in all qualities

123 **MEX-R-CO** LET THE "SURE HANDS OF EXPERIENCE" SEE YOUR JOB THROUGH

MEXICO REFRACTORIES COMPANY

MEXICO, MISSOURI

NILES FIRE BRICK DIV.—Niles, Ohio • NATIONAL REFRACTORIES DIV.—Philadelphia, Pa. • BIG SAVAGE REFRACTORIES DIV.—Frostburg, Md.

Canadian Affiliate: REFRACTORIES ENGINEERING & SUPPLIES, LTD.—Hamilton, Ontario, Canada

Enter 1016 on Reader Card

INDUSTRY NEWS

(Continued from page 60)

tinuous man hours without a lost time accident.

In line with its comprehensive safety program, Material Service presents safe driving awards to any driver who has an accident-free year. Fifty percent of the company drivers received awards in 1956, and of these, 80 percent were winners in 1955.

Cement Prices Rise

LEADING EASTERN CEMENT producers have raised their prices for the second quarter of 1957. Most have upped them 15 cents a barrel effective April 1, bringing average per-barrel cost to $3.35. The increases at eastern mills are the first since last October when similar boosts were put into effect. On January 1, most western producers raised prices, and one official said the latest eastern rises are an effort to catch up with other parts of the country. Spokesmen blamed increasing fuel and freight costs for the markup.

Compiles Mineral Survey

MAINE STATE GEOLOGIST, John R. Rand, is compiling a survey on information about Maine's mineral wealth. Included in the compilation are feldspar, mica, limestone and other minerals. Mr. Rand says that "an unlimited raw material supply" for a feldspar processing plant exists in Oxford, York, Androscoggin, Cumberland and Sagadahoc counties. Mica, usually found in conjunction with feldspar, might provide a profitable byproduct in a processing plant, he said.

The geologist expects to work out an index on occurrences of limestone in Maine. New England's only cement plant is located in Thomaston, near extensive deposits. There is a limestone mine in Union; and large deposits in Aroostook County may prove of value in cement manufacture.

Builds New Crushing Plant

HEISEY BROS. QUARRIES of Rheems, Pa., has opened a new $250,000 crushing plant that will eventually produce 500 tons per hour. The company has an outstanding five-year record of no lost-time accidents.

Builds Ore-Cement Vessels

THE ONODA CEMENT CO., Tokyo, Japan, announces the proposed construction of two ore-cement carriers, believed to be the first of their kind in Japan, which will carry bulk cement to Southeast Asian countries and return with iron ore. The first vessel is slated for use by the end of 1957, and will weigh approximately 11,900 deadweight tons.

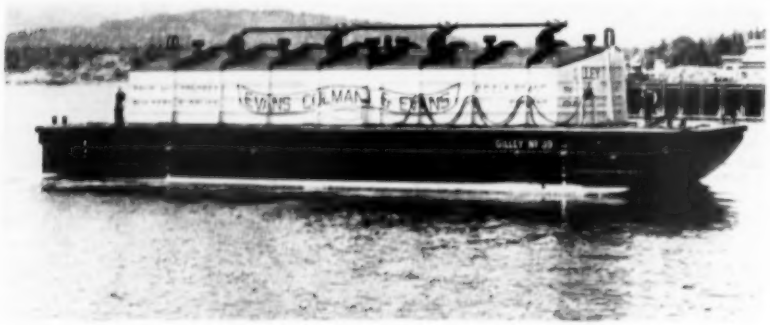
Transfers Interest in Plant

THE CANADIAN GOVERNMENT formally transferred its interest in the $6.75-million Maple Leaf cement plant at Daudkhel, Pakistan, to the Pakistan government. The plant, a joint enterprise of the two governments, went into production March 1, 1956, with rated output of 350 tpd.

Kansas Mineral Data

THE STATE GEOLOGICAL SURVEY OF KANSAS, University of Kansas, has released data on value of minerals produced in the state in 1956. About 15.5 percent of the total was contributed by nonmetallics, with a valuation of $81 million. Crushed stone, building stone, agricultural limestone and rock brought an estimated $25.5 million, an increase of about 60 percent in one year.

Sand and gravel produced was valued at $8 million, a gain of about 14 percent during the year, and portland and masonry cements were valued at $29 million, a gain of approximately 11.5 percent.



Self-Unloading Barge Put in Service

A CANADIAN FIRM, Gilley Brothers, Ltd., of Vancouver, has put into service the first of two self-unloading cement barges constructed by Yarrows, Ltd. The 4,500-bbl. barge unloads cement at an average rate of 450 to 600 bbls. per hour, depending on local conditions and transport distance. It is completely self-contained with all loading equipment on board.

The barge is 105 ft. long, 38 ft. in the beam and 10½ ft. deep. Cement is stowed in four V-bottomed hoppers, and pneumatically loaded by a Fuller-Kinyon stationary pump at the cement mill through an 8-in. transport line running above the hoppers. The bottom of each hopper is fitted with a 10-in. open-type F-H Airslide Fluidizing conveyor reposing at an eight-degree angle. In the unloading operation, cement from the hopper Airslides is transferred to the pump via 10-in. enclosed Airslides. Flow gates regulate the flow from any quadrant, enabling the operator to control the trim and heel of the barge. Cargo discharging requires only the part-time attention of one operator. All equipment is arranged to operate on 440 volts, ac.

Coming Conventions

June 6-8, 1957—
National Lime Association, Annual Convention, Broadmoor Hotel, Colorado Springs, Colo.

June 16-21, 1957—
American Society for Testing Materials, 60th Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N.J.

June 23-29, 1957—
International Bureau of Precast Concrete, Second International Congress and Machinery Exposition, Wiesbaden, Germany

July 29-August 2, 1957—
Prestressed Concrete Institute, Third Annual Meeting and World Conference on Prestressed Concrete, Fairmont Hotel, San Francisco, Calif.

END

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ANOTHER CATERPILLAR FIRST!

CERTIFIED POWER

FOR CAT* DIESEL ENGINES

CATERPILLAR TRACTOR CO.

ENGINE POWER CERTIFICATION

This is to certify that the Diesel Engine herein described has been engineered, manufactured and tested in accordance with rigid Caterpillar Standards. The materials and workmanship incorporated into this engine give it the inherent capacity for satisfactory performance when applied in accordance with the power ratings established and recommended by this company. The MAXIMUM OUTPUT capacity of this standard production engine is 200 H P @ 2000 R P M equipped with: air cleaner, water pump, lubricating oil pump, fuel pump, and standard intake and exhaust manifolds.

I certify that B. L. Henson Supervisor of Diesel Engine Test, Caterpillar Tractor Co., Certification and I affix my ... 19 57

B. L. Henson
Supervisor Diesel Engine Test
Caterpillar Tractor Co.
Peoria, Illinois

...58

Caterpillar Model D326 Industrial was manufactured and shipped as follows: Engine Serial No. 39B1018 Shipping Date February 11, 1957

Power Setting 152 H P @ 1600 R P M Intermittent Power Rating

Radiator & Fan	Tachometer Drive
Ether Starting Aid	Muffler
32V Charging Generator	Heater Connections
Governor Control	Remote Shut-off

POWER RATINGS

MAXIMUM OUTPUT is the horsepower capacity of the engine, a measure of the maximum power, a "go" that can be developed for five minutes without drop in speed.

INTERMITTENT HORSEPOWER is a rating for use in variable load applications such as dozers, excavators, hoists, and standby power. Full power output is one hour or less with the average output not over 80% of Intermittent Horsepower.

RATED HORSEPOWER is a rating for use in applications such as planing mills, hammer mills, and rock crushers where the duration of sustained full power output is 12 hours or less.

CONTINUOUS HORSEPOWER is a rating for use in applications such as work boats and pumps where the duration of sustained full power output is 24 hours per day, day in—day out.

Horsepower figures are established in accordance with rigid Caterpillar standards. All ratings corrected to sea level barometric pressure (29.92 in. Hg.) and standard temperature (60°F.) apply to a production engine including air cleaner, water pump, lubricating oil pump, fuel pump and standard intake and exhaust manifolds. The above ratings are based on Society of Automotive Engineers and American BHP.

FORM NO. SIS 32552

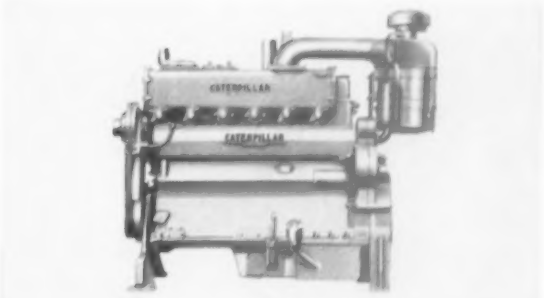
Printed in U.S.A.

In a quarter century of diesel leadership Caterpillar Engines have achieved a reputation for *honestly rated power*. Owners have found that they can depend on a Cat Diesel to deliver the power promised.

Now, to back this reputation, Caterpillar becomes the *first* manufacturer to issue a certificate showing the horsepower capabilities of the engine. This certificate is signed by Caterpillar Tractor Co. and certified by a notary public.

You have a right to demand *certified power* when you invest in an engine. You get it when you buy from your Caterpillar Dealer. Let him show you the certified power plant that fits your needs.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.



CATERPILLAR*

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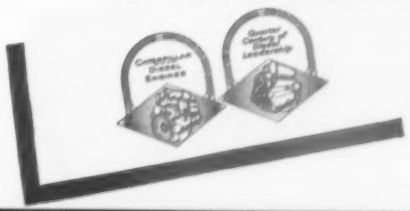

LOOK AT REO FOR

LOOK AT REO IN THE CONSTRUCTION FIELD

Mr. V. E. Cook reports—"We are pulling 72,000 lbs. G.C.W. with Reo's A633-V-8. We were surprised when we weighed the new tractor and found it 2,000 lbs. lighter than other equipment in the 200 H.P. class. Naturally this permits 2,000 lbs. more payload."

EXTRA PAYLOAD

"2000 lbs. MORE PAYLOAD"

. . . says Virgil E. Cook, President, Cook Block and Brick Co., Anderson, Ind.

An extra ton per trip! Extra payload means extra profit . . . that's one of the big advantages you get when you haul with Reos. Reo engineering has eliminated excess weight—built in extra payload. Operators the nation over are experiencing the rewards of Reo's weight-saving design.

On their jobs everywhere Reos are setting spectacular records for power and efficiency. About his Reo wet sleeve, short stroke V-8, Mr. Cook says, *"Our operation is over winding, hilly roads which really test a truck when you are pulling a load this size . . . (72,000 lbs. G.C.W.)."* Reo's 207 and 235 h.p. Gold Comet V-8 engines develop a startling 1/2 h.p. per cu. in. displacement—up to 35% more efficient than the industry average. Pound for pound, Reo V-8's are the most powerful truck engines on the road.

Reos have the power to move bigger loads faster. They take grades in up to 1½ gears higher than other trucks on the highway and maneuver better in the city.

Reos haul more payload, haul it faster and haul it easier. You'll find it true on your job, too!

100,000 mile or 1 year warranty on all Reo Gold Comet Engines. This is the assurance you get from the manufacturer of the precision construction and outstanding performance that's built into Reo's rugged powerplants. Find out how you get this amazing warranty on the engine in the next truck you buy. Call your Reo Branch or Distributor today.

REO MOTORS, INC.

LANSING 20, MICHIGAN • TORONTO, ONTARIO

SUBSIDIARY OF **BOHN** ALUMINUM AND BRASS CORPORATION

REO

WORLD'S TOUGHEST TRUCK

TRUCKS, BUSES AND GOLD COMET ENGINES FOR ORIGINAL EQUIPMENT, INDUSTRIAL AND REPLACEMENT—GAS OR LPG

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The Right Size and Type Rear Dump

for every tough quarry job!

34-ton capacity PR21 - DW21, for maneuverability in tight quarters.

PR15 - DW15 — fastest, toughest hauler in the 22-ton capacity class.

34-ton capacity PR20 - DW20, for long hauls, high speeds.

New 31-ton Athey Hydraulic Ejection Trailer handles sticky, hard-to-discharge materials.

Name the materials you handle — Rock, earth, overburden — there's an Athey Trailer designed specifically for handling them faster and cheaper than ever before.

Name the tough jobs that beat up haulers — Fast, tough hauls, sloppy footing, big rock, tight quarters — that's the job for an Athey Trailer!

You make your selections from the only *complete* and *proved* trailer line. Select the exact size and features to gear your haul unit to your job. You can depend on them — each Athey Trailer is built to highest standards of quality, design and construction. And Athey Trailers set the pace for lower cost, fast dumping, greater maneuverability, easier loading and higher production.

Ask your Athey-Caterpillar Dealer for all the facts on the complete line of quality-built Athey products today — he will gladly help you select exactly the right Athey-Caterpillar hauling unit for your quarry job. Or write us for literature. ATHEY PRODUCTS CORPORATION, 5631 West 65th Street, Chicago 38, Illinois.

THE *Complete* TRAILER LINE... *by the Leader*

Athey

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HINTS AND HELPS

Profit-making ideas developed by operating men

Bulk Cement Handling

THE ILLUSTRATION shows a LaCrosse trailer that delivers bulk cement in rented containers. The plant using the cement is about four blocks from the railroad siding. Two trailers are in service and each one hauls two containers. These "cans" are self-contained units. Cement is pumped to the silos from the containers with compressed air and dust filters are used on the containers when being filled. The railroad siding is above street level and the containers on the railroad car are unloaded to air-activated containers on the trailers.

Instrument Cover Panel Keeps Tractors Safe

IN ORDER TO DISSUADE any would-be "rustlers" who might be tempted to play "cowboy" with its units, a New York firm has come up with this instrument panel cover to prevent anyone from starting the tractor. The cover is designed to slip on and lock in place over the instrument panel. To remove the device, the operator need only unlock and lift. He then fastens the cover to the left side of the fuel tank by a tension type catch.

Mirror Aids Scale Man

A MIRROR MOUNTED as shown in the illustration can often be of advantage to the scale man when loading a long truck or a truck and trailer. With this particular type of arrangement the scale man can see how the loading is progressing without leaving his post. Thus, he can spot and quickly correct any trouble that may occur.

Oil Drum Storage

EXPENSIVE STORAGE BUILDINGS can often eat up the savings from bulk purchases. Drums of oil and lubricants can be stored in the open if they are tilted to prevent the accumulation of rain or snow which might corrode the small service plug in the top of the oil drum.

At the same time, the drums are easily counted and are readily available whenever needed.

Dust Spouts

DUST SPOUTS AND STONE LADDERS are not new, but they are being used here in an aggregates plant to prevent segregation of crusher base materials and to minimize the hazards and nuisance of wind-blown dust as well as the dispersion and the loss of fine particles.

(Continued on page 69)

SECO

HELPING MAKE *Cushions* for *Superhighways*

Photographed on the job at Gary Slag Corp., Gary, Ind.

at Gary Slag Corp., Gary, Ind.

Indiana's giant, modern roadbuilding program is in full swing and Gary Slag Corporation is taking an active part in it.

For instance, Gary Slag has met the strict specs. of the new Indiana East West Toll Road in supplying the sub-base cushion for ten miles of this road. In addition, they have supplied concrete aggregate for twenty miles of the same road and they have furnished a large amount of macadam paving material. Ten SECO screens are taking an important part in this operation, too! Gary Slag Corporation estimates that they have screened and sized over 7 million tons of specification material over SECO screens since 1947.

In the words of Mr. P. J. Mack, General Supt. of Gary Slag Corporation "We can't praise our SECO's enough for dependability, accurate sizing and minimum down time. They take tremendous loads without a whimper."

SECO scalper screens 400 T. P. H.

Seco screen in tower of Gary's lightweight aggregate plant

Outgoing materials to meet toughest specifications

SEND FOR SECO CATALOG #204

SCREEN EQUIPMENT COMPANY, INC.

Buffalo 25, New York

Enter 1047 on Reader Card

(Continued from page 67)

Lightweight, Midget Diesel Shuttle Locomotive

RECENTLY REPOWERED by a three-cylinder Diesel engine, this eight-ton Plymouth yard locomotive—a midget in comparison to one of the cars it moves—is today doing a giant's measure of work for a concrete supplier in Detroit. Handling as many as 12 cars at a time, this lightweight "Dinkie" shuttles incoming shipments of gravel from a railroad siding to the company's ready-mix plant. The new engine is a 102 hp. Power is transmitted through an Allison Torqmatic converter which provides the smoothness of steam in starting heavy loads. The diesel replaced a gasoline engine and was mounted on the unit's existing frame, with only minor body alterations required in making the changeover.

Watchman's Trailer House

ALL THE COMFORTS OF HOME are provided by this trailer-house for the night watchman. The several hundred acres of gravel deposit are enclosed with a man-tight fence and the watchman is assisted by a "friendly" dog.

Angle Iron Keeps Water Off Belt

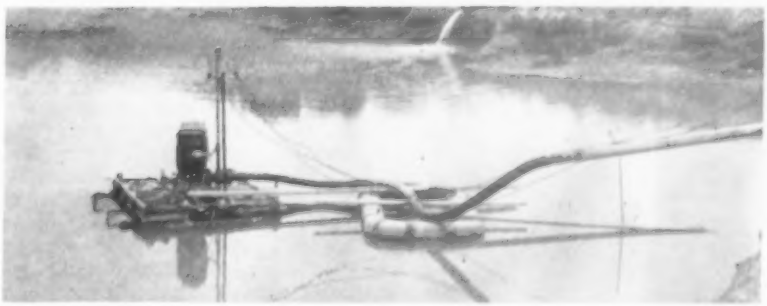
PILES OF WASHED AGGREGATES stored in the open not only drain continuously, but collect water from snow and rain. All it takes to keep this water from collecting on the belt conveyor is a bar of angle iron at the back of the chute to carry the water to a pipe at the conveyor frame.

Old Pipe Can be Used as Structural Frames

OIL PRODUCING FIELDS in many parts of the country have proved to be a good source for used steel pipe and tubular steel casings. This steel has great strength, is easily fabricated and, when available locally, is an economical method of making A-frames for conveyors, bracing for bins and pipe for wash water in sand and gravel plants.

There is no reason why it cannot be used as a substitute for structural steel when enough tonnage is available at reasonable cost for industrial buildings, bins, conveyor galleries and other types of structures usually found throughout the gigantic rock products industries.

Wash Water Pump on Raft Guarantees Supply

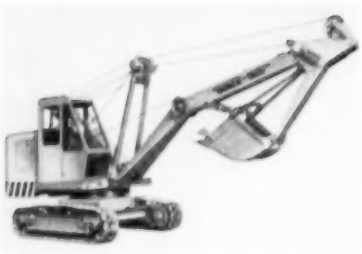


FEW THINGS PLEASE A GRAVEL plant operator more than a dependable supply of clear wash water. Not only is this pond below the water table, but it is fed from settling ponds above it. There is no problem of variable water level, since the pump which supplies water to the plant is mounted on a raft anchored near the shore.

END

NEW MACHINERY

Crane-Shovels



QUICK-WAY TRUCK SHOVEL CO., P. O. Box 1800, Denver, Colo., has announced three new power crane-shovel models: 85A, truck-mounted 4/10-cu. yd., 8½-ton convertible crane shovel; 105AC (illustrated), crawler-mounted ½-cu. yd. model (both available now); and the 85AC, a 4/10 cu. yd. crawler-mounted model which also is available at the present time.

The 85A features 360-deg. vision, streamlined steel cab, hydraulic clutch controls and side swinging doors for access to machinery. The main jack shaft is powered from the engine. Model 105AC crawler is equipped with 24-in. track shoes; other available widths are 16- and 32-in. The crawler is powered from a second standard swing drum assembly taking power from the crane engine. Speeds in forward and reverse are ⅞ m.p.h. to 1¾ m.p.h.

Enter 100 on Reader Card

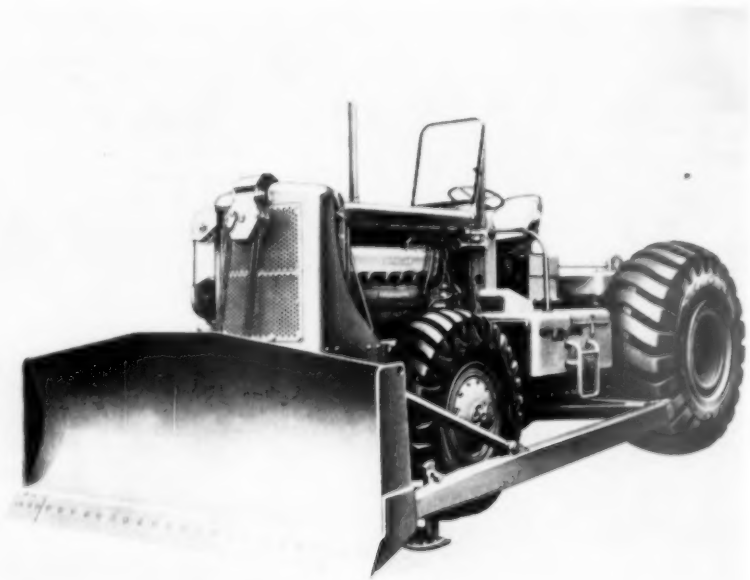
Off-Road Hauler

LETOURNEAU-WESTINGHOUSE CO., Peoria, Ill., has introduced a new 30-ton off-road hauler, Model LW-30. The truck features the "Hydair" suspension system. The steering system is protected within or above the frame line, giving the LW-30 twice the usual underclearance. Chassis grease fittings have been eliminated. Special bearings lubricated and sealed at the factory need regreasing only if disassembled.

Power steering, power brakes, power clutch, and a power seat are standard equipment. Options include an automatic transmission and cab air-conditioning. The truck has a 128-in. wheelbase and a loading height of 108 in. It is powered by a turbo-charged, 4-cycle, V-8 Cummins engine which produces 375 hp., to give it the extra power necessary for off-road operation.

Enter 101 on Reader Card

Four-Wheel-Drive Tractor Has 12 Speeds



CATERPILLAR TRACTOR CO., Peoria, Ill., has announced the Caterpillar No. 668 (Series C) tractor, a 300-hp. four-wheel-drive model. For bulldozer and pusher operation, a transmission providing eight forward and four reverse speeds is used, affording speeds up to 26.3 m.p.h. For scraper applications a transmission with 10 forward and two reverse speeds is provided, with top speed of 32.1 m.p.h. Power is transmitted to the front wheels through an auxiliary power train.

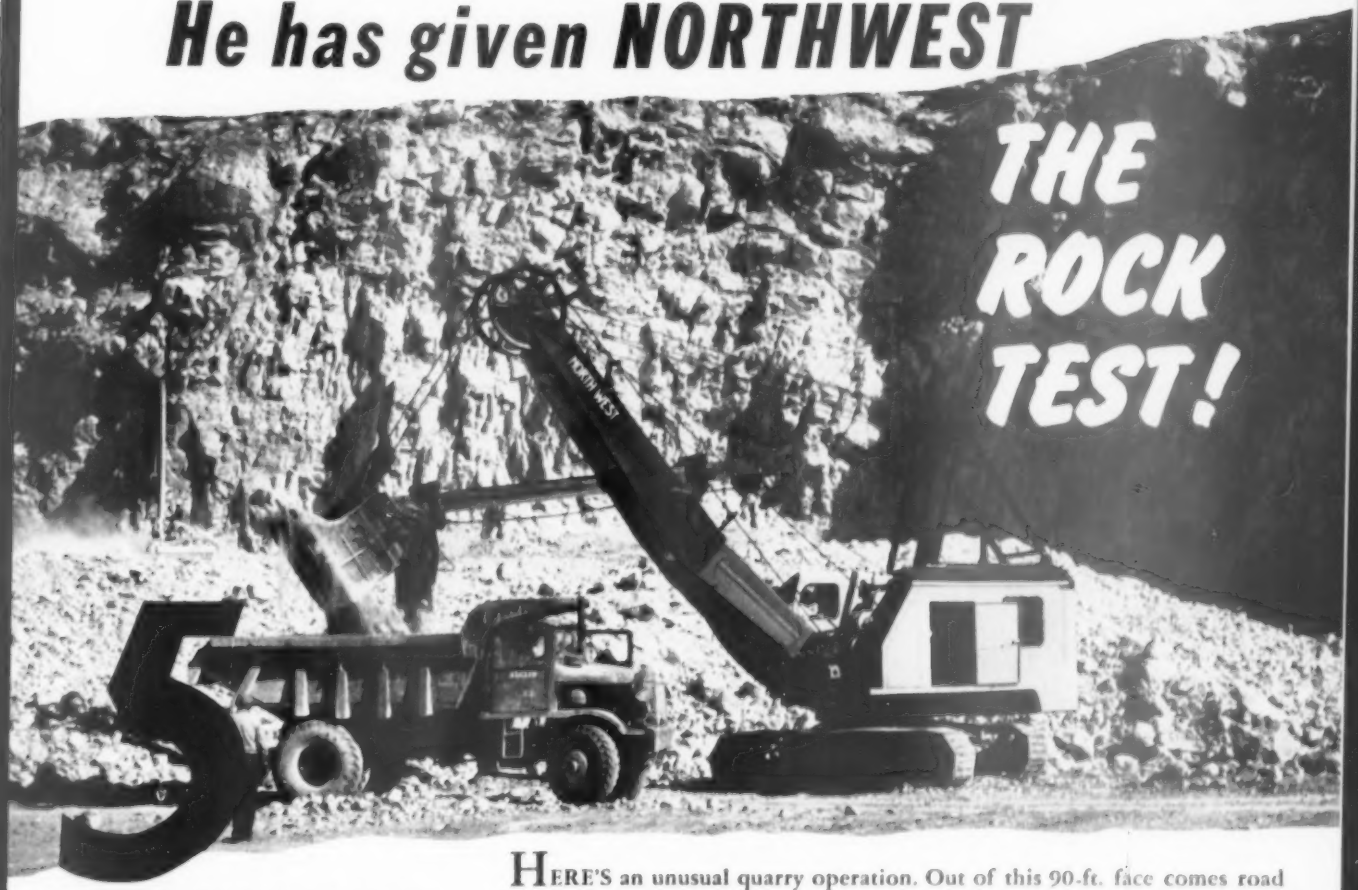
The No. 668S bulldozer, pictured with the tractor, is 12 ft. 10 in. wide and 4 ft. 5 in. high. Skid shoes are mounted on the draft arms to give the operator close blade control. The bulldozer can be operated by the No. 27 rear mounted cable control, No. 24 front-mounted cable control or No. 46 front-mounted hydraulic control. Weight of the tractor with bulldozer and cable control is approximately 43,750 lb. Other attachments available include the No. 456 scraper, Hyster winch, counterweights and drawbar.

Enter 102 on Reader Card

(Continued on page 141)

Enter 1032 on Reader Card

He has given NORTHWEST



NORTHWESTS keep the Rock moving for Houston Clinton, Burnet, Texas

HERE'S an unusual quarry operation. Out of this 90-ft. face comes road material, railroad ballast, riprap, filter stone, fluxing stone used in the Texas Steel Mills, and a chemical stone. Five of the seven Northwests Houston Clinton owns are used to produce this wide range of materials.

Here is another of the many installations that demonstrates Northwest ability in rock.

Your Northwest is a real Rock Shovel, built for rock, proved in rock. It has the advantages that make it a better rock shovel. The Northwest Dual Independent Crowd utilizes force most independent crowd shovels waste. The "Feather-Touch" Clutch Control makes operation easy without resorting to delicate valves, pumps or compressors. The Cushion Clutch eliminates the damaging shock overloads *before* they reach machinery — not after. Uniform Pressure Swing Clutches take out the jerks and grabs that make spotting the dipper difficult and add ease to handling the big ones.

There are other advantages you should ask about. Remember, Northwests have a proved record of making money because when you have a *real* Rock Shovel you never have to worry about output in *any* digging.

NORTHWEST ENGINEERING COMPANY
135 South LaSalle Street • Chicago 3, Illinois

NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Convertible for any Mining Material Handling or Excavation Problem

Safe driving award being presented to a Basic Construction Materials driver for driving motor vehicles for two years without a single accident

Safety programs—

here's one that really

BENEFITS FROM A SAFETY PROGRAM come easily if the program is a good one, if it is kept simple, and if it provides the proper incentive to gain support of the workers for it. That's what the Chillicothe, Ohio, division of Basic Construction Materials has found since it installed a safety-bonus plan in 1955.

Results to date have been excellent. There was a 60 percent drop in plant and truck accidents the first year, and a further 25 percent cut the second year. As to insurance rates, liability and property damage has been cut four percent; as to collision, 20 percent. A preventive maintenance program has grown out of the safety-bonus plan and overall maintenance cost has gone down 20-25 percent. Operating down-time, particularly on transit-mix trucks, has decreased 50 percent. The improved appearance of the plants, trucks and equipment has raised the morale of the workers, and customer relations are the best in the company's experience.

Rules for the plan are simple. Each employe—70 participated in the plan—is credited with five cents per hour worked as a maximum bonus he can get during the working year. Though he received the whole bonus at once at the end of the year, the plan is set up on a quarterly basis, and each quarter is a separate bonus unit. Balanced against each individual account in each quarter are penalties in the form of deductions for accidents, unsafe practices or bad housekeeping.

Deduction rates are high, to keep workers on

Between jobs and during their spare time, drivers keep their equipment neat and clean

This truck is typical of Basic Construction Materials motor vehicles. Clean and attractive looking trucks help improve customer relations

works

By GEORGE C. LINDSAY

their toes. An accident during any quarter, no matter who is at fault, means that the employe's bonus for that quarter is reduced 50 percent. Two accidents wipe out the bonus for that quarter. An unsafe practice cuts the bonus 25 percent, and any act contributing to bad housekeeping around the plant takes 25 percent off the bonus of every man in it. The manager of the Chillicothe division and the plant superintendents are the sole judges of rule infractions. Their decisions are final, and are accepted without question by the employes because it has been evident to them that management's judgement is reliable and fair.

A major reason for the success of the plan is that the employes like it. Each is given a chance to add to his bank account by working safely and courteously and taking pride in his work. Every worker keeps his eye on the men around him, for he knows that any unsafe act or one that contributes to bad housekeeping may result in a cut in his own quarterly bonus. The plan works primarily because the employes want it to work.

Basic Construction Materials is a subsidiary of New York Coal Company of Columbus, Ohio. The safety-bonus plan is the brain-child of William A.

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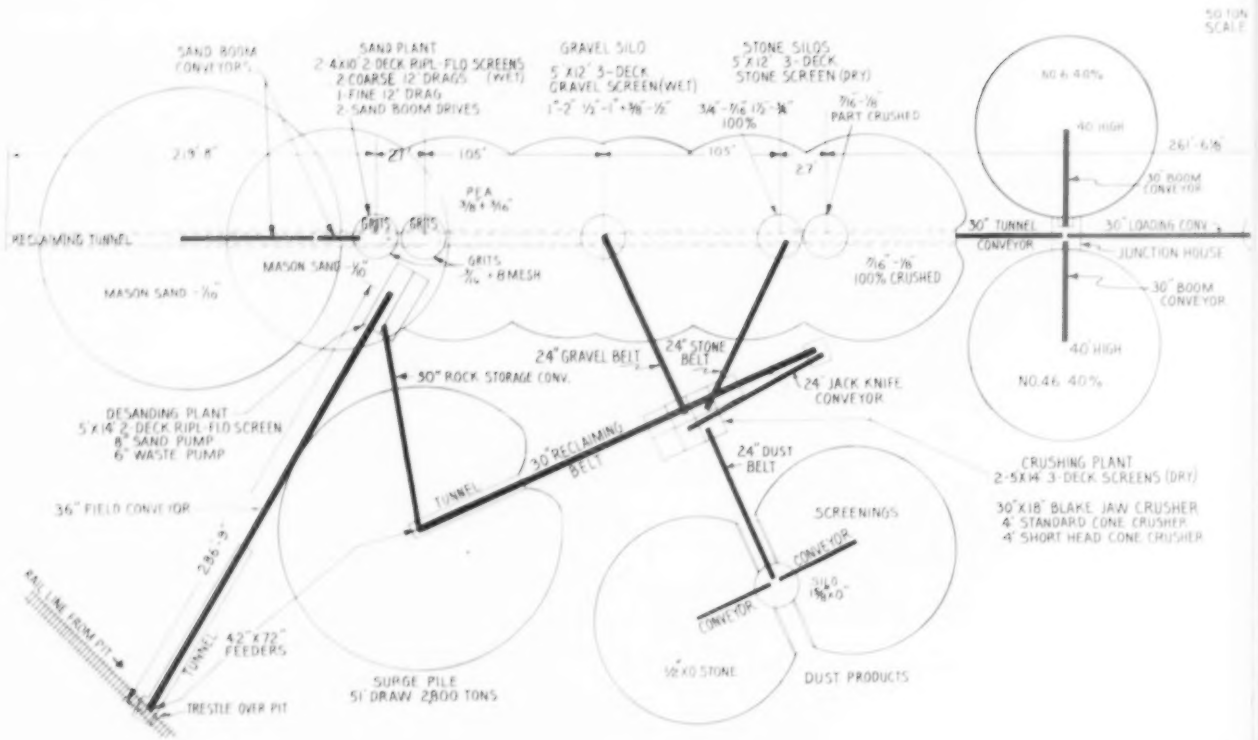


What is an efficient sand and gravel

OUTSTANDING PLANT DESIGN and highly efficient production methods characterize the new Hamilton-Symmes sand and gravel plant of American Materials Corp., located five miles southwest of Hamilton, Ohio. It is owned by one of the nation's leading aggregate producers, American Aggregates Corp., and incorporates many of the best features of the company's several older production units. The plant was started up during the summer of 1955 to produce a complete range of specification materials in both crushed and uncrushed sizes at a 400 tph. clip.

In line with recent trends in the aggregates industry, the Symmes plant involves the production and stockpiling of about 10 basic sizes, which are later blended on a 630-ft. tunnel belt conveyor. Under this arrangement the company can turn out the virtually infinite variety of sand and

By KENNETH A. GUTSCHICK

Portable grizzly hopper being loaded by a 4-cu. yd. dragline. Rejects from the grizzly fall into the pit.

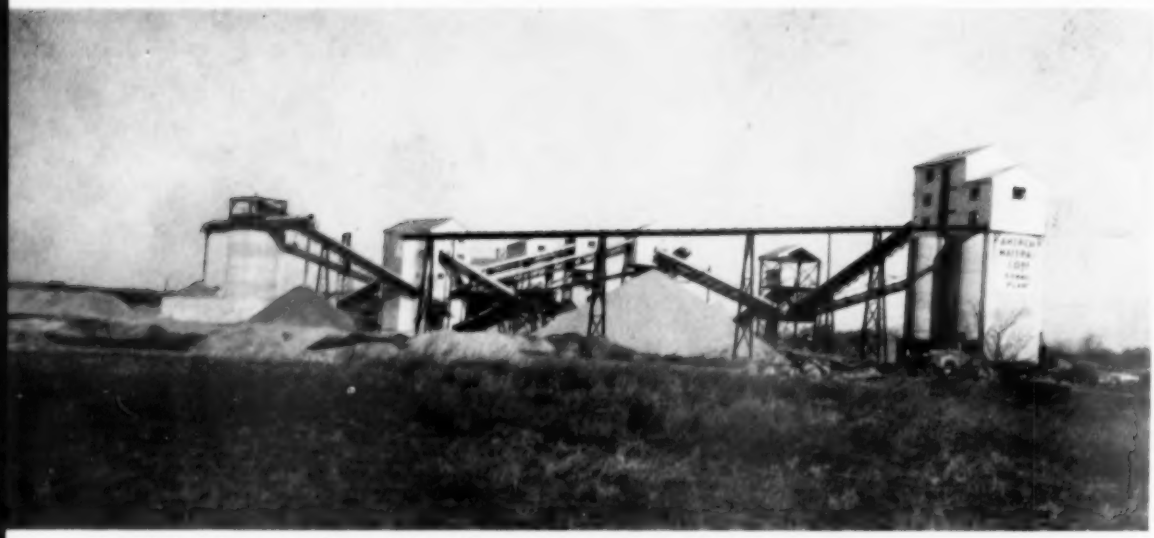
plant?

gravel sizes demanded in today's construction market. Another distinct advantage is that the screening plant is not at the mercy of the pit. That is, variations in size throughout the pit will not materially affect the finished products, since the basic sizes fall within narrow size ranges.

Major operating components of the plant are as follows:

1. Dragline pit operation, with a portable field grizzly hopper and rail haulage to the plant.
2. Desanding plant.
3. Sand plant, incorporating two screens and three circular sand drags.
4. Surge pile and crushing plant, with two screens and three crushers.
5. Gravel and stone screening towers, processing uncrushed and crushed products.
6. Loading silos and stockpiles for crusher plant "dust" products.
7. Tunnel belt conveyor, rinsing screen and loading silos for blended products.

One notable feature is the separate crushing



Overall view of American Materials Corp. plant showing ample storage space

An efficient plant

Continued . . .

plant, which can be operated independently of the rest of the plant because of its desanded surge pile feed. This layout also gives maximum crushing efficiency, since material size and rate of feed can be closely regulated. In contrast, crushers handling pit-run material, as is often the case in smaller operations, operate at lower efficiency due to fluctuating loads. Another major feature is the use of large stockpiles and silos rather than the smaller bin facilities typical of most nonblending plants. These larger storage facilities contribute to continuous plant operation.

The 60 ft. deep gravel deposit occupies a 220-acre site on the floodplain of the Miami River, and nearly the entire thickness is below the water table. The conventional cut-and-fill method of operation is used, each cut averaging 150 ft. wide. An electric Bucyrus-Erie 120B crawler dragline, with a 120-ft. boom and 4-cu. yd. Hendrix perforated bucket, handles stripping operations. Gravel excavation is handled by a Marion 4161 employing a 100-ft. boom and a 5½-cu. yd. Hendrix bucket. In stripping, the clay overburden is side-cast into the adjacent worked out strip.

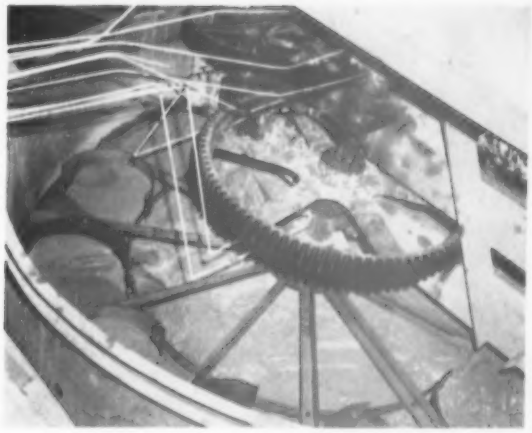
The pit loading system is unique, using a 35-ton portable grizzly-type field hopper, mounted over standard gauge rail tracks. The grizzly has 9-in. sq. openings and is inclined to reject boulders. The 175-ton hopper is emptied through three air-operated gates, each with a 3 x 3½-ft. opening. Haulage to the plant, a distance of less than ½ mile, is done in two 40-ton capacity bottom dump hopper cars pulled by a 300-hp. General Electric diesel-electric locomotive. To relocate the hopper, the company uses a specially built jack car, which is fitted with four hydraulic 35-ton jacks used to lift the hopper sufficiently for movement by the locomotive.

At the plant the cars dump from a trestle to a surge pile over a reclaiming tunnel. An inclined 36-in. ribbed belt conveyor with 287-ft. centers, delivers the pit-run material to the desanding plant. The belt has chevron ribs to carry the wet material at a 400-tph. rate. The belt is fed by a 42 x 72-in. Jeffrey-Traylor vibrating feeder, which is loaded through an air-operated gate in the reclaiming tunnel.

At the desanding plant the material is sized and initially washed on a 5 x 14-ft. Allis-Chalmers Ripl-Flo double deck screen which has ¾-in. and ⅜-in. screen openings. Plus ⅜-in. gravel is taken by a 30-in. belt conveyor to the surge pile ahead of the crushing plant, while the fines are discharged to a large steel tank, from which an 8-in. Amsco SB pump with 125-hp. drive transfers the material to the sand plant. Overflow from this tank is flumed to a second steel tank, to be pumped by a 6-in. Amsco unit to the pit for disposal. This

Live storage bins for truck loading of washed sand

Sand classifier permits operator to determine final size of sands



pump also handles tailings from the sand plant and from both the gravel and stone screening towers.

In the sand plant the material is fed from two large steel tanks to a pair of 4 x 10-in. Ripl-Flo double-deck screens. The feed tanks are interconnected to equalize the load to each screen. Each discharges through three 4-in. diam. adjustable spouts spaced on 12-in. centers to distribute the load across the screen width. Having 3/16-in. top and eight-mesh bottom decks, the screens produce pea gravel, grits and mason sand. The two larger products are discharged to concrete silos or to a stockpile, while the minus ⅛-in. sand is dewatered and sized by three 12-ft. diam. sand drags before being stockpiled. The sand is fed first to two drags in which the scoops are adjusted to pick up the coarsest particles. Fines in turn overflow to a small tank, to be transferred by a 3-in. Nagle pump to the third fines drag. Tailings from this drag are sent to a waste pond, while products from all three drags are conveyed to either of two stockpiles. The piles are charged on alternate days to permit adequate dewatering.

Main control panel in crusher building features pushbutton operation

Larger aggregates are processed in the crushing plant, which is fed from the desanded surge pile of 2,800 tons live storage capacity. Feed to the 30-in. secondary conveyor, 184-ft. centers, is effected by a 42 x 72-in. Jeffrey Traylor vibrating feeder mounted in the reclaiming tunnel. The feed

Please turn to page 110

Lightweight, flexible garments coated with a thin layer of aluminum protect maintenance workers from dust and heat

Protect kiln workers with

Aluminized

fabrics

Light, comfortable garments shield maintenance workers

THE HAZARDS OF HEAT AND DUST have long caused personnel problems in industries where there is burning, roasting, calcining or smelting of fine raw materials. Dust and heat are common around the kilns, kettles, furnaces and flues of the cement, lime, gypsum and also the lightweight aggregates industries.

One solution to the problem of protecting workers to permit them to work comfortably and effectively in a hot or dusty atmosphere has been developed by the Minnesota Mining and Manufacturing Co. The answer is to coat a fabric with a thin film of aluminum.

Protective garments can be made of lightweight cotton duck or asbestos fabric and coated with a metallic coating thinner than the foil around a package of cigarettes. Thin as it is, this metallic coating prevents any dust from seeping into the weave of the fabric.

By keeping the dust out of the fabric the metal prevents the dust from wearing through the garment. At the same time the worker is shielded from the abrasive and drying effects of the dust. In addition, the aluminized fabric reflects over 95 percent of the radiant heat it is exposed to and dissipates the other five percent immediately.

One midwestern cement company investigated the use of aluminized fabrics to protect workers assigned to clean out electrostatic precipitators. Protective garments made with aluminum coated fabrics were made up by Pulmosan, Inc., safety garment manufacturers in St. Louis. These clothes proved to be light, comfortable to wear and easy

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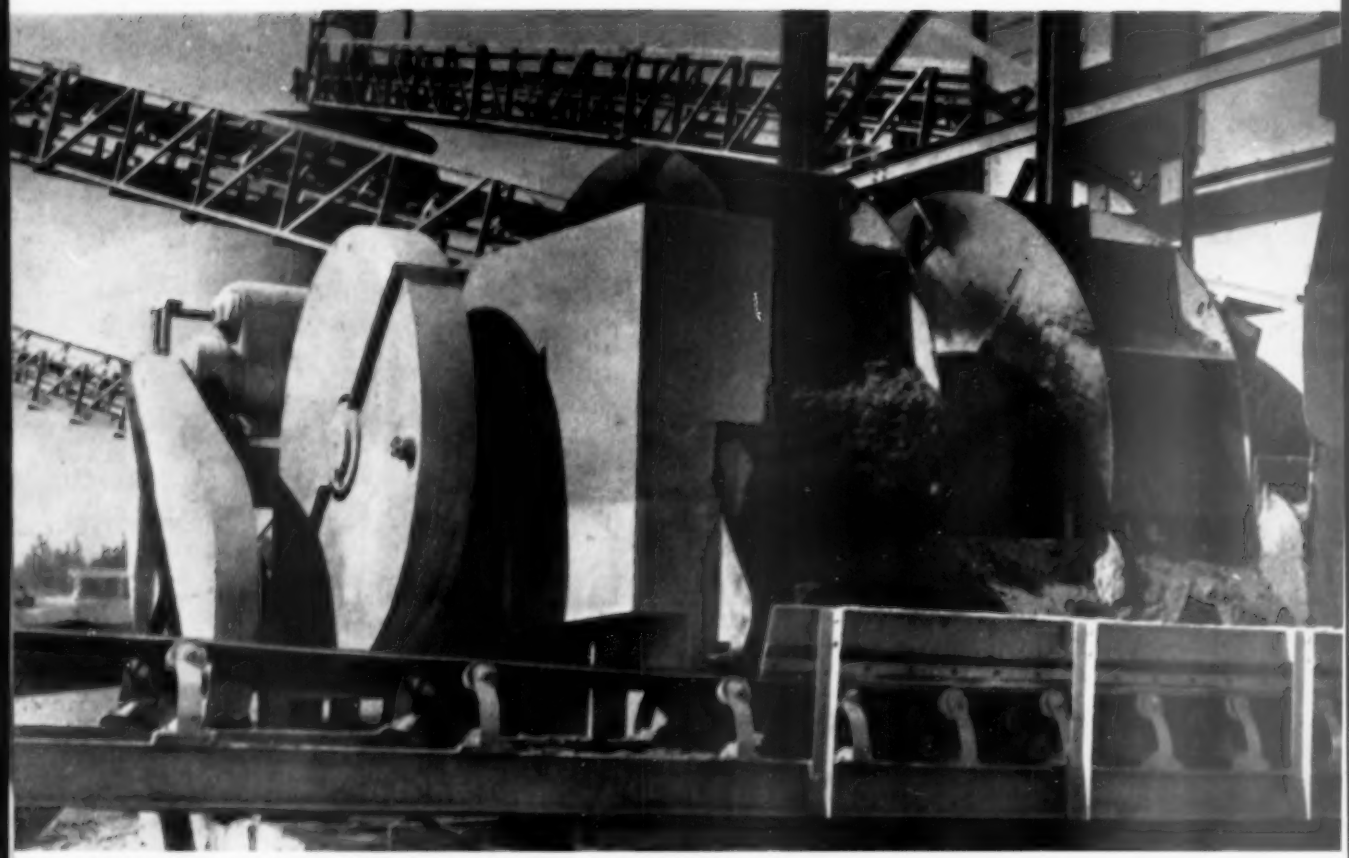


Wet sand is recovered and partially dewatered on these two 42 in. wide sand wheels

At Service Rock . . .

They can expand to

PROBLEMS AS WELL AS PROFITS can come to a sand and gravel company situated in a briskly growing area. Service Rock Co., in the desirable Colton-Riverside-San Bernardino section of southern California, found its market expanding so rapidly that both company pits in the vicinity were nearly depleted. To meet the demand, the firm has opened a new plant at Lytle Creek, near Rialto, Calif. This new plant was completely designed by The Conveyor Company of Los Angeles, Calif. The Conveyor Co. also supplied all equipment used in the plant.

At first only the primary crushing and screening sections was set up at Lytle Creek, and sized coarse gravel and cobbles were trucked to the older plant at Colton for crushing and rescreening. But last summer, within a year after the pit was opened, two secondary crushers were placed in operation and other plant alterations and additions were made. Now the Lytle Creek plant can produce a 100 percent crushed gravel and a dry 100 percent crusher sand (or crusher dust) as well as washed and sized commercial aggregates.

The new plant is on the edge of desert country. This means that gravel bearing ground is prac-

By WALTER B. LENHART

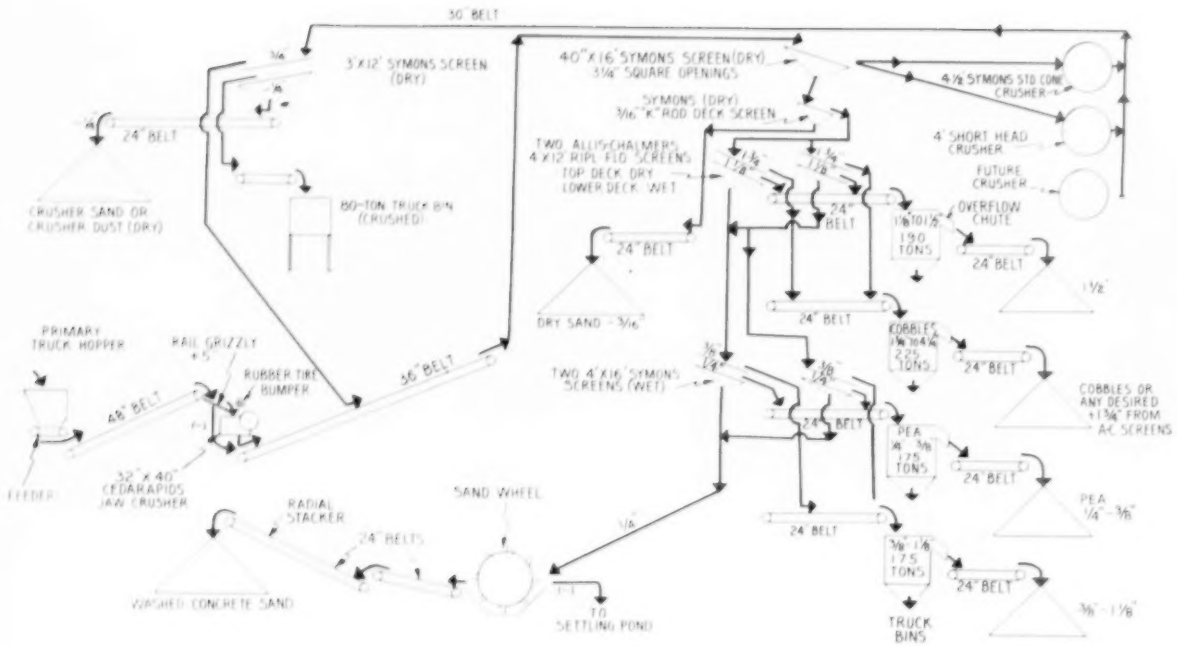
Centralized control panel gives push-button control over all of the operations

1,000 tons per hour!

tically free from overburden; that dry sand, which sells well here, is available; and that maintaining an adequate water supply is a major problem. Most of Lytle Creek is diverted for irrigation, and all surface water in the region, which is a citrus center, is owned by municipalities and irrigation companies. The plant purchases water from a city authority. This water is pumped from wells in the nearby washes. After it has passed through the plant, it must be returned to its source via seepage, so the firm has dug a two acre pool some 60 ft. deep as a settling basin. Water from this pool can be reused, but the main purpose is to let it go back to the underground sources.

The gravel pit is about 60 ft. deep and is worked from two benches. The top bench has coarser gravel than the lower, so selective mining is possible. A tractor and dozer can push material from the upper bench to the shovel as it is required.

Primary loading is with a 1½-cu. yd. Koehring shovel, but, when conditions warrant it, larger shovels from the company's other operations can be put into service. Three Euclid bottom dumpers with 26 to 28 tons capacity do the primary hauling. The trucks dump to a concrete hopper over the feeder, serving a 48-in. belt to the grizzly. From the grizzly, which has 5-in. openings, material goes to a 32 x 40-in. Cedarapids jaw crush-



1,000 tons per hour

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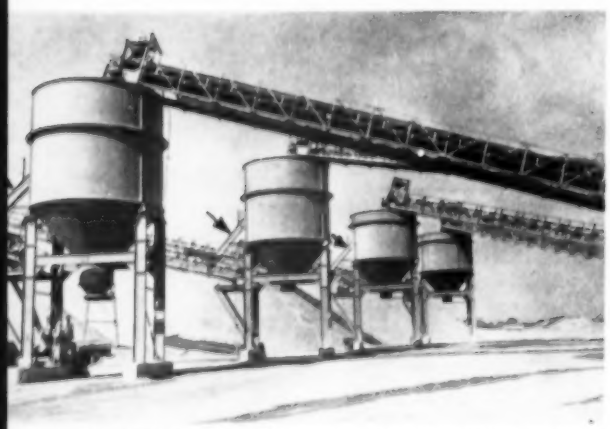


Four load-out bins. The arrows point to overflow chutes to 24-in. stacker belts

er, powered by a 150-hp. General Electric motor.

Dry sand is produced from a Symons "K" rod deck screen that has 3/16-in. openings between the rods. The feed to this is normally 3¼ in., but at times gravel as large as 4¼ in. passes over the deck. The unit is excellent for preliminary screening of fines from such coarse feeds; the rods stand up well under severe usage. Practically all the sand in the matrix can be removed here and sent to a 24-in. stacker belt for ground storage. What remains is eventually screened and washed out and recovered later as a washed concrete sand. Sometimes the dry sand can be blended into crusher-run, giving a great deal more added stability to the base courses.

The final screening and washing tower is divided into two separate plants. Each plant can run separately, if necessary. A system of flop gates permits a great amount of flexibility in preparing commercial aggregates. Oversize rock from the scalper screen can be chuted to either a 4¼-ft. standard or a 4-ft. shorthead Symons cone crusher. The two crushers are side by side with foundations provided for a 3-ft. cone to be installed later as shown in the diagram above.

Roughs from the cones are conveyed to a 3 x 12-ft. dry, double-decked Symons screen, where crusher sand (or crusher dust) is removed and ground stored via a stacker belt. Minus ¾-in., plus ¼-in. 100 percent crushed rock is conveyed to an 80-ton load-out bin. Plus ¾-in. rock from the screen is then chuted back to the belt serving the main screening tower.

This tower also houses a General Electric control panel and a one-ton-capacity Electro-Lift for handling screen sections and repair parts. Crusher jaws and other items subject to wear are built up with Stoodite hard surfacing rods by a Lincoln arc welder.

Please turn to page 140

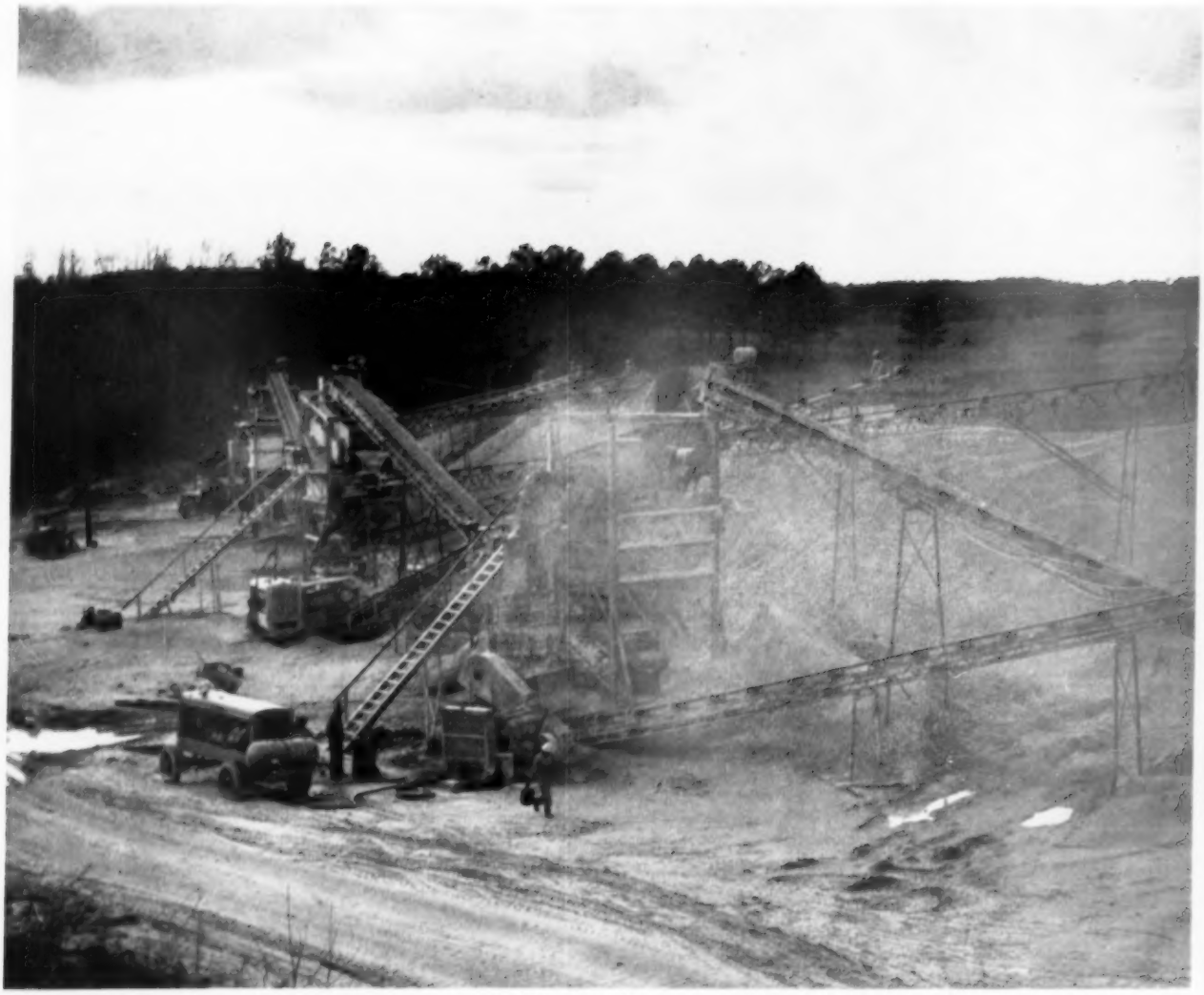
After blasting, the heavy rock is loaded into trucks for transportation to the crusher

Heavy demand for aggregates **boosts** quarry's output

HEAVY DEMAND FOR THE GNEISS AGGREGATE produced by Macon Quarries has made necessary an expansion and modernization program that has multiplied output from 50 tons per hour to 800 tons per day. The rock deposit is about six miles northwest of Macon, Georgia, in an ideal spot for supplying the central part of the state with material.

Until 1950, the quarry, whose mineral rights are leased from the Georgia Industrial Home for Orphans, operated at a low rate of production. Then the former owners installed a semi-portable plant producing 50 tons per hour and added larger equipment gradually. By 1955 the setup was capable of producing up to 250 tons per hour of crusher run material. With the installation of the larger equipment new power sources were necessary. The problem was solved by a Caterpillar-mounted diesel generator which supplies power for screens, conveyors and feeders. Single diesel units operate the three crushers. Other equipment is run from power lines reaching the property.

The quarry has an average depth of 100 ft., and two 50-ft. faces on two benches are being worked. A clay overburden 2 to 6 ft. thick is removed by a 2½ cu. yd. Hough Payloader. The blasting, done once or twice a month, yields 20,000 to 25,000 tons of rock per blast. Fifty to sixty 6-in. blast holes are drilled with an Ingersoll-Rand Quarrymaster and loaded with Dupont 60-percent dynamite in 25-lb. sticks, decked with varying amounts of ammonium nitrate.



Overall view of plant showing pan feeder, primary crusher and 36-in. x 120-ft. conveyor belt to primary surge pile

Heavy demand boosts output

Continued . . .

After blasting, the rock is loaded on 17-cu. yd. Euclid end dump trucks by a 2½ yd. Link-Belt Speeder diesel-powered shovel. A 5-ton drop ball handled by a 1½ yd. Link-Belt Speeder diesel crane with a 50-ft. boom is used to break up the oversize stone. The trucks dump the quarry rock into a 42 in. wide x 14 ft. ctrs. Pioneer apron feeder which feeds it into a 42 x 48-in. Pioneer jaw crusher.

This primary crusher reduces the stone to minus 8-in. sizes and discharges the material on a 36-in. x 120-ft. Marco conveyor belt which deposits it on a 1,500-ton primary surge pile over a reclaiming tunnel with a single gate. A 30-in. Marco belt in the tunnel carries the material to another belt conveyor leading to a Syntron vibrating feeder. This discharges to a Seco double-deck screen, with 4-in. and 2-in. openings. From this screen the stone goes to a 4-ft. Symons cone crusher which reduces it to minus 1¼-in. This material is screened on a second Seco double-deck vibrating screen with 1½-in. and 1-in. mesh, and rock retained on both decks is sent to a Traylor 3-ft. gyratory crusher which reduces it to minus 1-in. sizes.

At left, conveyor belt from primary crusher. Center foreground shows end of reclaiming tunnel and conveyor to double-deck screen

Crusher and one of the screening towers. Power is supplied by diesel electric generator

From this point the material goes by belt conveyor to a Seco triple-deck screen with 1-in., ¾-in. and ⅜-in. mesh. These sizes are discharged by gravity to separate 18-in. stacker belts leading to stockpiles. The last screening operation, separation of ¼-in. material from the minus ⅜-in. rock, is done on a Cedarapids double-deck screen.

Local demand is heaviest for 1½-in., 1-in., ¾-in., ½-in. and ⅜-in. sizes. These are the same as the numbered designations in specifications of the Georgia State Highway Department, and are maintained in separate stockpiles. A 690-ft. blending tunnel runs under them and is connected by a 100-ft. belt conveyor to a 150-ton-capacity truck loading bin. By means of six Syntron feeders and chutes to a blending tunnel, any desired size of stone or a combination of several sizes can be directed to the loading bin. A central control house operates the blending system. Westinghouse switches control the start and stop buttons on panels there, and the master switch is made by Bulldog Electric Products Co., Detroit.

Macon Quarries makes no deliveries of material. Contractor customers and small users send their own trucks to the quarry or employ contract haulers. Trucks and loads are weighed on Howe 50-ton Weightograph scales with a 30-ft. platform.

Roy Foster, Jr., is general manager of the operation, Ernest Kilby is plant superintendent and Guy F. Jenkins is office manager.

END

". . . there has been a need for many years for a common grindability standard . . . "

Research pushes guesses into

IN THE CEMENT INDUSTRY there has been a need for many years for a common grindability standard which could be used as a realistic comparison of grinding mill performance in different plants using various types of raw materials. There should be broad interest in this method wherever grinding mills are used in the vast rock products industries.

A means of checking the relative efficiencies of grinding mills is now available. Since the expense of power in cement plants is a major item of manufacture and, since approximately 80 percent of it is used in crushing and grinding, it should be of great interest to find out how efficiently grinding is being carried out.

A few years back, Arthur Taggart said that a grindability test must be run by a man of much grinding experience. Taggart goes on to say that an experienced man with an anvil and a hammer could tell more about the grindability of a material than an inexperienced man running a grindability test.

Without doubt there is no substitute for experience. However, since Taggart's remarks many things have been done to improve and simplify the determination of grindability. Guesses, even those based on experience, have been pushed into the background and accurate predictions of power for grinding are a reality.

Based on this investigation it is felt that the Bond Ball Mill Test is an accurate and convenient standard grindability test. There is need for such a test so that grinding problems involving different plants, machinery and materials can be usefully studied.

Grindability has been defined broadly as the response of a material to grinding effort. The purpose of this study was to find or develop a practical method to determine the response of materials to grinding effort so that it may be usefully employed to study grinding installations.

Five practical tests now in use were selected for a detailed review and from them the Bond Ball Mill Test was chosen for a laboratory evaluation. A number of cement raw materials and clinkers were ground by this method and the results were found to be reproducible within a few percent.

Whenever grinding installations are compared, a number of variables must be considered and evaluated. Some of these variables are the size, type and make of mill, speed, ball charge, mill load, output and size of feed and product materials. All can be determined rather easily and exactly.

There is one other variable, probably the most important of all, that is not so easily found: the grindability of the material. It is just as important, for matters of comparison, to have all grind-

By A. S. KANNEWURF

Mr. Kannewurf is an Associate Process Engineer for the Portland Cement Association and has been with the P.C.A. for the past 2½ years. A graduate of the University of Wisconsin's Engineering School, Mr. Kannewurf had several years experience in process engineering to his credit before joining the P.C.A.

grindability the background!

abilities expressed in the same units as it is to have all mill outputs expressed in tons per hour or all mill speeds expressed in rpm.

Some of the items considered essential in any test that might be adopted as a standard method for determining grindability were:

- A constant mill load
- Closed-circuit grinding
- Use of a natural or unscalped feed
- Adaptability to various meshes of grind
- Equilibrium conditions in the mill at the end of the test
- Reproducible results
- A test based on the ball mill principle.

These items were selected so that laboratory conditions would approach as closely as possible mill conditions existing in industry.

With these requirements in mind, a survey was made of available literature on grinding. They concerned grinding theory, grinding laws and grindability tests. Inquiries were sent to leading manufacturers of crushing and grinding equipment asking what grindability tests they employ. It was found that the number of practical grinding tests being used was very limited, not more than a half dozen being reported.

From these a ball mill test was selected, partly on the basis of these requirements and partly be-

Tests were carried out with this 12 x 12-in. ball mill

TABLE 1 SAMPLE CALCULATION SHEET FOR BOND BALL MILL GRINDABILITY TEST

Weight and volume of mill load 1183 gr. — 700 cc. IPP = $\frac{1183}{3.5}$ = 338 gr.

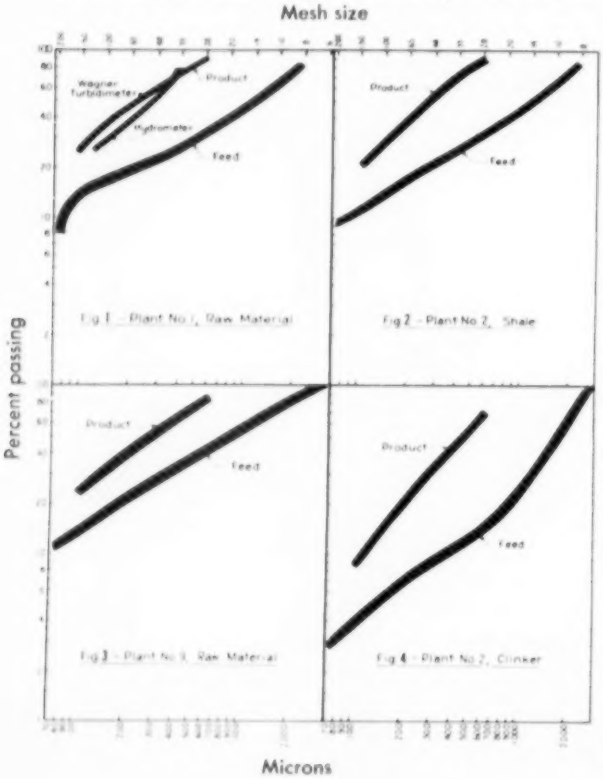
Minus 200 — mesh material in feed 8.93 percent

Period 1	Weight of minus 200—mesh material in new feed—1183 gr. x 8.93 percent—105.64 gr.	
1183 gr. mill load	348.00 gr.—200 mesh (product)	$\frac{242.36 \text{ gr.—200 mesh (net)}}{100 \text{ Rev.}}$ = 2.42 gr. per rev.
835 gr. + 200 mesh	105.64 gr.—200 mesh in feed	
348 gr. — 200 mesh (product)	242.36 gr.—200 mesh (net)	(100 rev.)
Period 2	Weight of minus 200—mesh material in new feed—348 gr. x 8.93 percent— 31.08 gr.	
	338.00 gr. IPP	
	$\frac{31.08 \text{ gr.—200 mesh in new feed}}{306.92 \text{ Actual gr. to be produced}}$	$\frac{306.92 \text{ actual gr. to be produced}}{242 \text{ gr. per rev. period 1}}$ = 127 Rev.
1183 gr. mill load	366.00 gr.—200 mesh (product)	
817 gr. + 200 mesh	31.08 gr.—200 mesh in feed	$\frac{334.92 \text{ gr.—200 mesh (net)}}{127 \text{ rev.}}$ = 2.64 gr. per rev.
366 gr. — 200 mesh (product)	334.92 gr.—200 mesh (net)	

Grindability

Continued . . .

Particle size distribution curves of feed and product material



cause of the potential of the test as a means of determining grinding mill efficiencies.

The test chosen for a laboratory evaluation was a dry grinding ball mill test used by a large equipment manufacturer. It was originated and developed by F. C. Bond and F. Cadena. Mr. Bond is the author of the relatively new "Third Theory of Comminution" which states that "the total work useful in breakage which has been applied to a stated weight of homogenous broken material is inversely proportional to the square root of the diameter of the product particles."

The tests were carried out with a 12 x 12-in. ball mill and simulated closed-circuit grinding. The ball mill was run through a number of periods until equilibrium conditions existed in the circulating load. The mill rotated at 70 rpm. with a charge of 20,125 g. of 1½-in., 1-in. and ¾-in. balls. The initial charge contained 27 1½-in., 57 1-in. and 201 ¾-in. balls. The mill load was maintained at a constant volume of 700 cc. throughout the testing.

To prepare the feed, approximately 75 lb. of raw material and clinker were obtained from each of five cement plants chosen so that the variety of raw materials would be as wide as possible. All material was air dried and stage crushed to 100 percent minus six mesh in preparation for the tests. None of the fine material was removed.

For stage crushing, a 15 x 9-in. ring roll crusher, a 3-in. jaw crusher and a small 7-in. diam. disc pulverizer were used. After the material passed through a stage of crushing it was screened so that

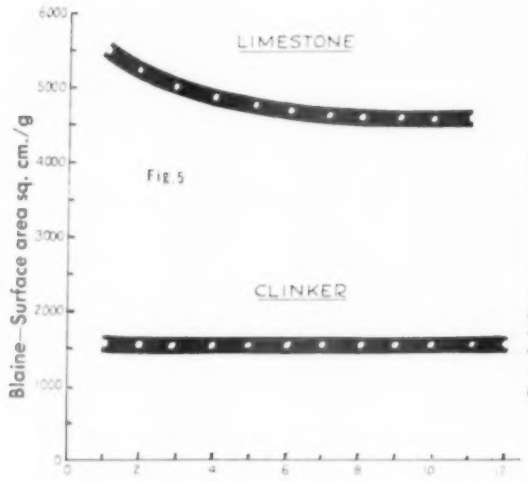


Fig. 5

Surface area (Blaine) versus test periods

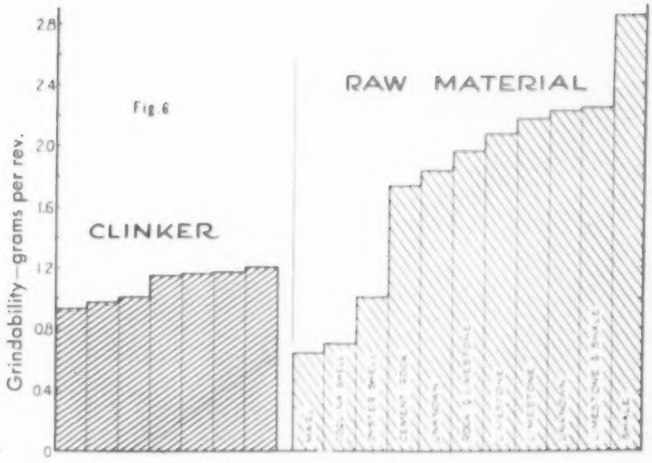


Fig. 6

Grindability of clinker and raw material

all minus six mesh material was removed prior to the next stage of crushing. A screen analysis was run on the finished recombined material and the percent of minus 200 mesh material was determined for use in later calculations.

The test could have been run with any mesh of grind desired. However, since the mesh of grind used should be close to that used in the commercial grinding operation being investigated, the 200-mesh sieve was chosen as the mesh of grind for all tests.

The mill load of 700 cc. was measured in a 1,000 cc. graduate. While the graduate was being filled, its base was gently tapped on a rubber pad. This insured equal compaction for all materials.

To load the mill, the ball charge was always placed in the mill first, then the 700 cc. of material that made up the mill load. This procedure insures that no work is done on the mill load by falling balls prior to the start of the test, which might be the case if the loading procedure were reversed.

All tests were begun at 100 rpm. of the mill for the first period. Thereafter the mill revolutions per period were calculated so that a circulating load of 250 percent was maintained. The test was continued until the circulating load in the mill reached equilibrium. This usually required from six to eight periods. The average time for a test, including the sieve analysis of the feed material, was one day.

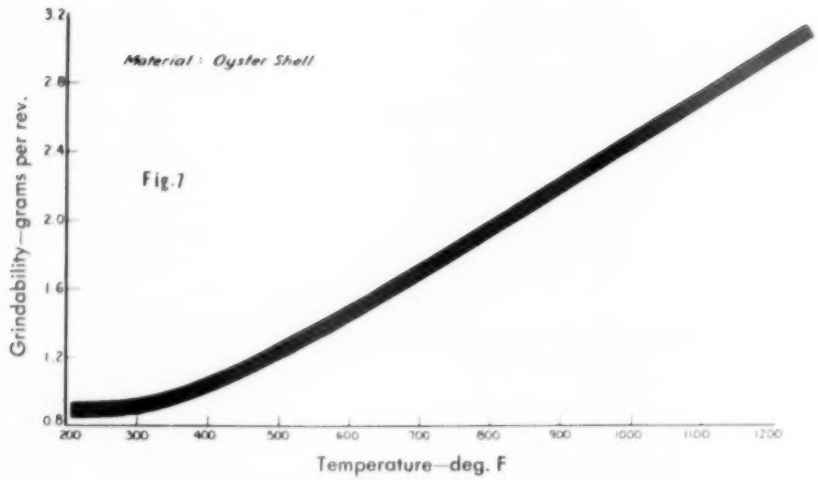
At the end of the first period all material was removed from the mill, and the ball charge separated from the mill load with a coarse screen. The minus 200-mesh product material was removed from the mill load with a Ro-Tap testing sieve shaker and the material remaining on the 200-mesh screen weighed and subtracted from the weight of the mill load. This gave the weight of product material. (See Table 1). From this weight was subtracted the weight of minus 200 mesh in the feed. This calculation gave the net grams of material produced by the mill during the first period. The grams per revolution were found by dividing the net grams of product by the number of mill revolutions. This figure from the first period served as a starting point for circulating load calculations.

The closed circuit was attained without the use of an air separator. It was done in steps by screening and the addition of new feed at the end of each period. With a circulating load of 250 percent, for every gram of product material leaving the separator (which in this case was 200 mesh) there were 2.5 grams of material to be returned to the mill. Since this was batch-mill operation, the weight of the 700 cc. mill load divided by 3.5—1 gram of product material plus 2-5 grams of oversize material—gives the grams of product material we would like to produce in each period of the test. This was called the **Intended Product Passing** or IPP.

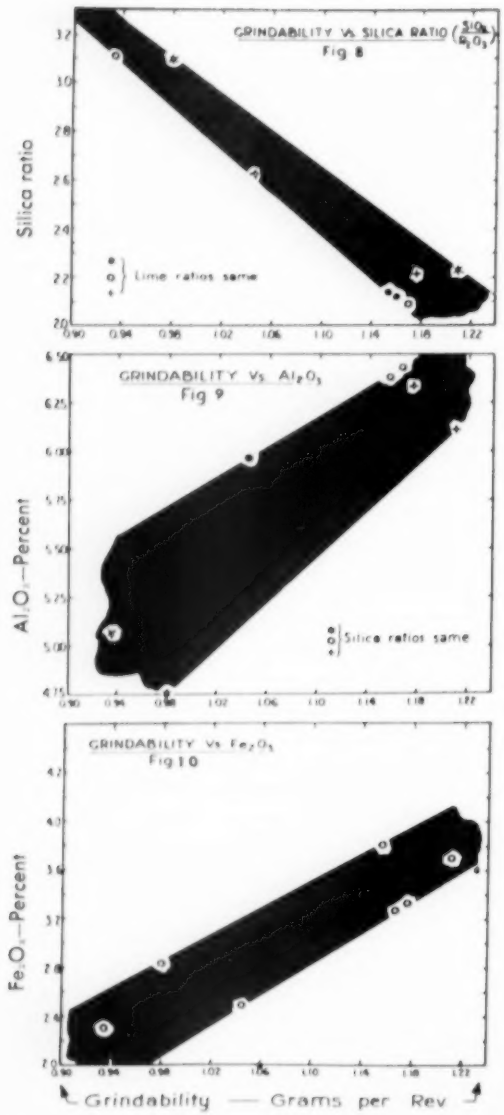
New feed was added at the beginning of period No. 2 to make up for the product material removed in period No. 1. The weight of product material in the new feed was calculated and subtracted from the **Intended Product Passing,** thus giving the actual grams of product material to be produced by the mill in this period. The number of revolutions for period No. 2 was found by dividing the actual grams to be produced by the grams pro-

Grindability

Continued . . .



Grindability versus drying temperature of marine shell



duced per revolution of the mill in period No. 1. This procedure was repeated for each period.

The net grams of product material per revolution showed a definite trend, either increasing or decreasing with each succeeding period. The periods were continued until a reversal or leveling off occurred. Then the values from the last three periods were averaged to find the equilibrium grams per revolution or ball mill grindability.

A "Work Index" can be calculated from the grindability by an empirical equation developed by F. C. Bond:

$$W_i = \left(\frac{16}{G^{.82}}\right)\sqrt{\frac{\gamma}{100}}$$

Where W_i = the "Work Index"

G = ball mill grindability

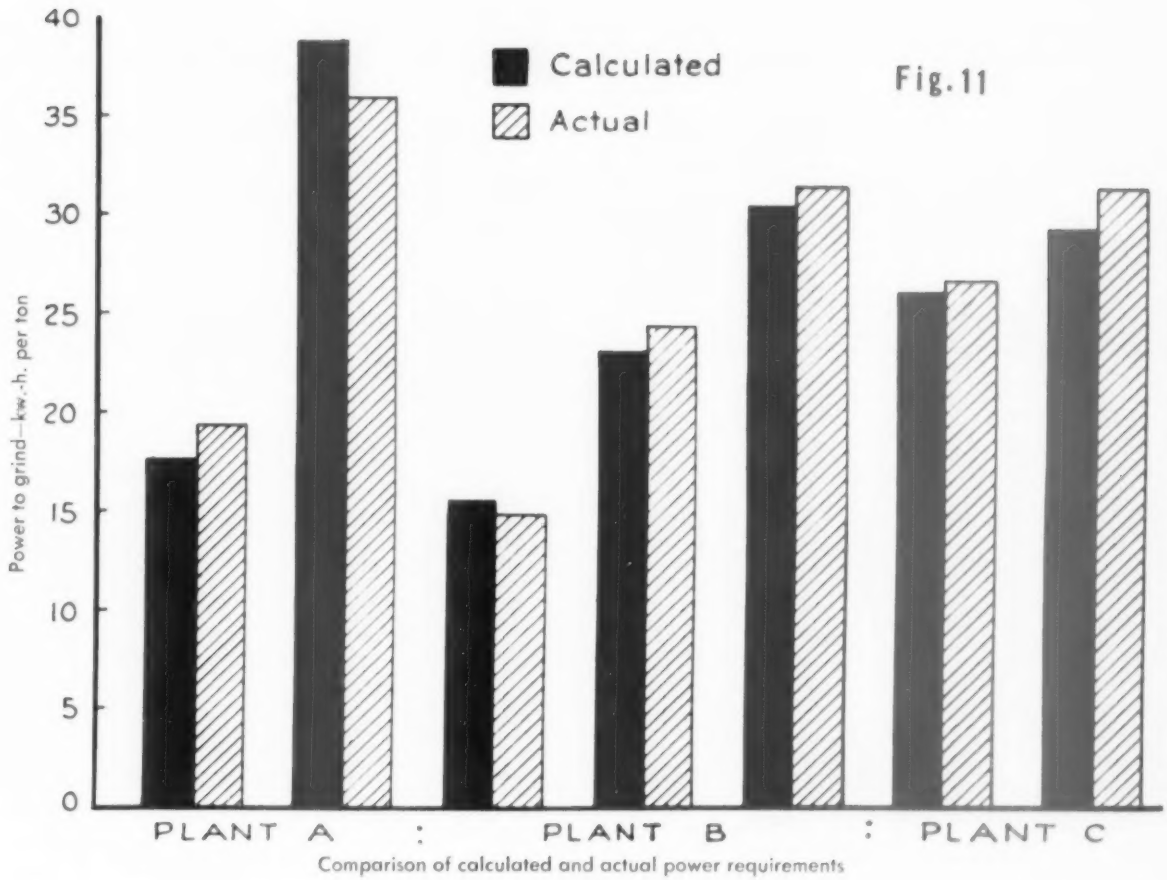
γ = micron size of the mesh of grind.

Since 200 mesh equals 74 γ

$$W_i = \frac{13.76}{G^{.82}}$$

This "Work Index" is defined as the kw.-hr. required to grind one short ton of material from theoretically infinite size to 80 percent passing 100γ. "The Work Index of a material," says Fred Bond, "is the most valuable single item of information regarding its crushing and grinding that can be obtained at the present time."

Although the ball mill test was run dry, for the sake of convenience, the "Work Index" calculations actually apply to wet grinding. The reason for this is that Bond originally correlated the dry ball mill test results with a large amount of data from wet grinding. Indices for dry grinding are



Comparison of calculated and actual power requirements

obtained by multiplying the wet grinding figures by 4/3.

The approximate power required to grind a material from any feed size to any product size can be calculated from the "Work Index" and the 80 percent passing size of the feed and product material by the following equation derived from the "Third Theory:"

$$W = \frac{10Wi}{\sqrt{P}} - \frac{10Wi}{\sqrt{F}}$$

Where W is the work in kw.-hr.

Wi is the "Work Index"

P and F are the 80 percent passing sizes, in microns, of the product and feed material.

The relationship between Wagner surface area SW, and the 80 percent passing size P, as derived by Bond, is as follows: log P — 11.699-3.15 log SW. Bond recommends a conversion factor of 5/9 when changing Blaine air permeability surface area to approximate Wagner surface area. The conversion method is merely a practical way of obtaining the SW value, and the ratio will vary somewhat for different materials.

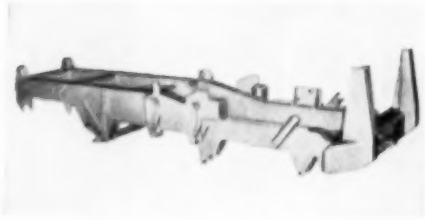
On the subject of particle size distribution in the ball mill test, F. C. Bond has this to say, "The purpose of the grindability test is to obtain a **comparison** of the grinding resistance of different materials which can be readily reduced to energy input required. It is not necessary for this comparison that the test product have a size distribution similar to that of the commercially ground cement or raw material. However, it is desirable that the size distribution of the minus 200-mesh products of the tests on different materials be similar to each other.

"The size distributions of the final minus 200-mesh equilibrium grindability products, which are the products from the last test cycle, are similar because the grinding conditions are so rigidly controlled. The circulating load is just 250 percent,

Please turn to page 116

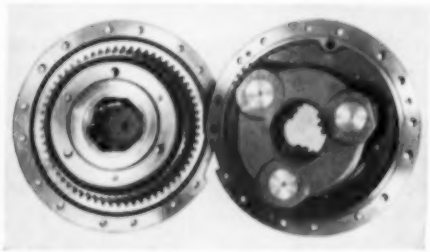
Now! an AUTOCAR 25-TON

Announcing the Autocar AP-25 with box frame



The torque-resisting box frame

Cutaway view of frame showing corrugation



Hub end of rear axle, with view of planetary gears

This Autocar will open your eyes to what modern off-highway trucks can do. It hauls over 16 cu. yd. per trip. Its low-gear performance is phenomenal and in the higher gears it will do better than 30 mph under load! With the Autocar AP-25 you make every load a big one, every trip a fast one—by the end of the day you've really done a day's work.

HERE'S WHY THE AP-25 OUTPERFORMS OTHER COMPARABLE TRUCKS

A Mighty Engine

You have a choice of two rugged turbodiesels developing 335 and 375 hp. Maximum torque is 900 and 942 lb. ft.

A Planetary-Gear Rear Axle

The AP-25 is built to endure. The planetary-gear rear axle with final reduction at outer ends of rear wheels minimizes torque loads on differential and axle shafts, provides much longer gear and shaft life.

A Torque-Resisting Box Frame

This brand-new frame is designed to be the strongest and most rigid in off-highway operation. Of all-welded construction, it has a variable-depth box section (maximum depth 18½ in.), reinforced internally for its full length by a heavy corrugated plate which is plug welded to alternate sides at intervals of 15¼ in., and is also welded to the tension member. The whole frame is made out of ⅝ in. plate and

Autocar

AUTOCAR TRUCKS

Autocar Division of The White Motor Company • Exton, Pa.

for big, bruising PAYLOADS

and planetary-gear rear axle for tough hauling

weighs more than 7200 lb. It will resist the most severe torsional loading.

An Offset-Mounted Cab

The cab is specially designed for off-highway service. Ruggedly constructed of heavy gauge sheet metal, it is mounted in an offset position. The left half of the cab takes up the full depth, thus providing ample space for the driver, but the right half is cut back to allow the cab to be moved forward on the chassis. This position enables the wheelbase and overall length to be reduced by 11 in., and thus provide increased maneuverability. A 2-way adjustable steering column (2 in. range in height, 15° arc forward or backward), and "Full-Adjust" Driver's Seat allow the driver to select his most comfortable position.

Choice of Mechanical Transmission or Torque Converter

The mechanical (Road Ranger) type of transmission provides nine properly spaced speeds (all but one on a single gearshift lever). The wide range of gear ratios assures exceptional low-speed performance, as well as high maximum speeds. The optional torque converter and planetary-gear transmission permit the driver, while under full power and full load, to shift without changing the throttle setting. A Torqmatic brake and direct drive lockup clutch offer the ultimate in control, safety and brake lining life.

There are many other features to this massive new Autocar. For full information on what the Autocar AP-25 can do to lower operating costs and increase volume, contact your nearest White-Autocar distributor.

Enter 1015 on Reader Card

Part 2

The Azbe integrated vertical lime kiln

By VICTOR J. AZBE

ARRANGEMENT OF THIS KILN differs from previous producer-gas fired kilns in that all air, whether utilized for the production or combustion of gas, enters the kiln at the lime outlet. Thus, all air passes through at least part of the lime cooler for maximum cooling of lime and highest recovery of its sensible heat.

Effective cooling of lime and sensible heat recovery is necessary if high thermal efficiency of the kiln is to be attained. But the higher the efficiency, the more difficult it becomes to cool the lime fully. This is because less coal is burned with increase of efficiency. Less air is required, and therefore less is available for cooling the lime. As this kiln is designed for highest possible thermal efficiency, the arrangement for total air passage through the cooler was built in. In addition, the cooler is made quite high to obtain the required heat transfer surface and to attain the desired retention time.

Air enters at 16 (Fig. 1) and about half is withdrawn at 17. As shown, most of this passes through 9 on to the gas producer to gasify the fixed carbon portion of the fuel. The remainder is the secondary combustion air, which is injected by a high-pressure fan (18) at high velocity in a turbulent penetrating manner into the kiln at a high point of the calcining zone. Here, the aim is to disturb the mass and to supply the remaining air required, as well as excess oxygen, for a sharp termination of all combustion.

The other half of the air that entered at 16 passes through the entire height of the cooler, and thus through the hottest lime where it becomes highly preheated. This is the Primary Air Stream.

The combustion process. The primary gas stream is added to the primary air stream at 13 where combustion starts. The primary gas is purposely limited in amount at this point. This gas is burned with a large amount of excess air, so that, even though the air is preheated, the resulting temperature is only about 2000 deg. F. This limited injection of gas establishes the "calcination finishing zone" extending to level 14 where the secondary gas stream enters. Below this level gas is burned in a zone of high oxygen content with surplus air. Above level 14 the opposite is true—producer gas is in excess while air is deficient.

This creates a luminous state. A long flame of high radiant power projects the heat between the stone where the gas stream does not penetrate. Radiance is produced by glowing carbon particles of decomposing hydro-carbons and this is only possible if there is incomplete combustion or a deficiency of air. That is exactly the purpose of this radiant calcining zone. It will be an effective heat transfer zone even though it will not be a hot zone. Being only about 2200 deg. F., the lime will not be harmed.

The excess secondary gas is burned only after the secondary air is injected at 19. This is accomplished in a highly turbulent manner for rapid mixing and sharp termination of all combustion. Air admitted is in excess but due to turbulent state, it is less than in the case of ordinary kilns. Surplus air or gas streams are disrupted, and combustion in the pre-calcining zone or the preheating zone is avoided.

Calcination is thus stretched out through three

Please turn to page 98

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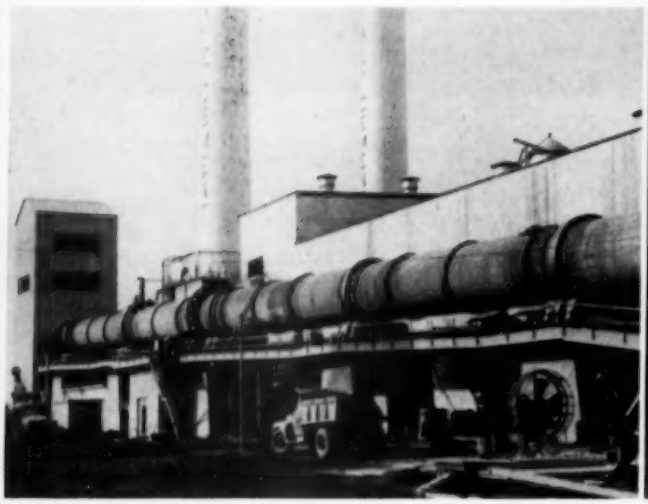

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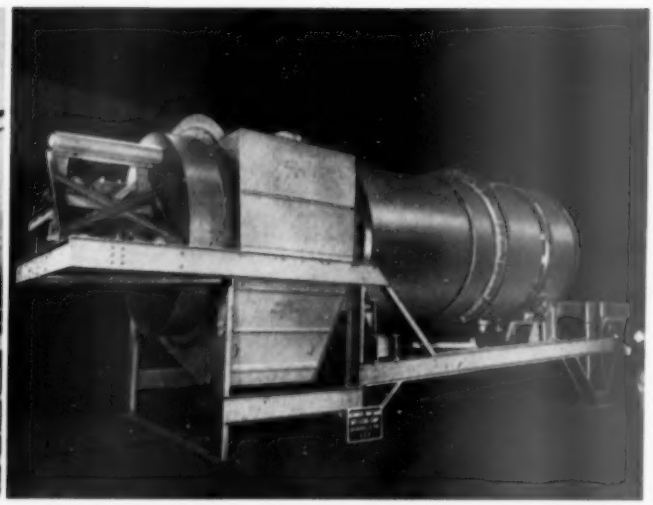

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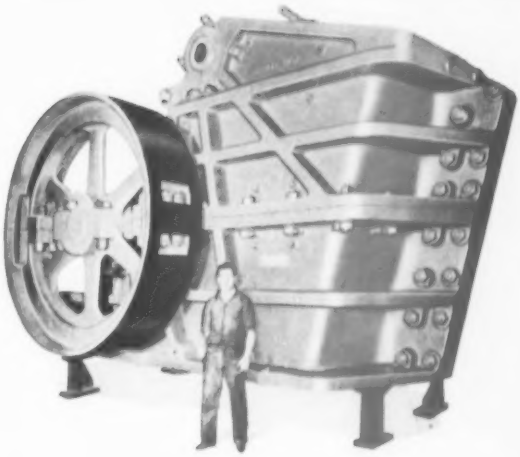

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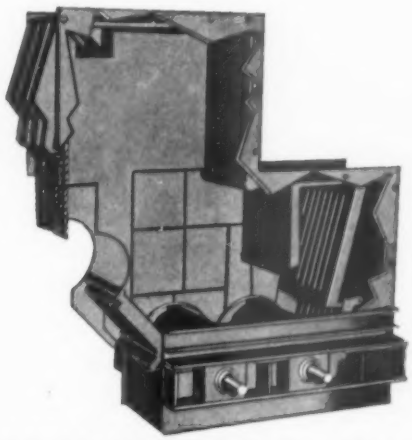

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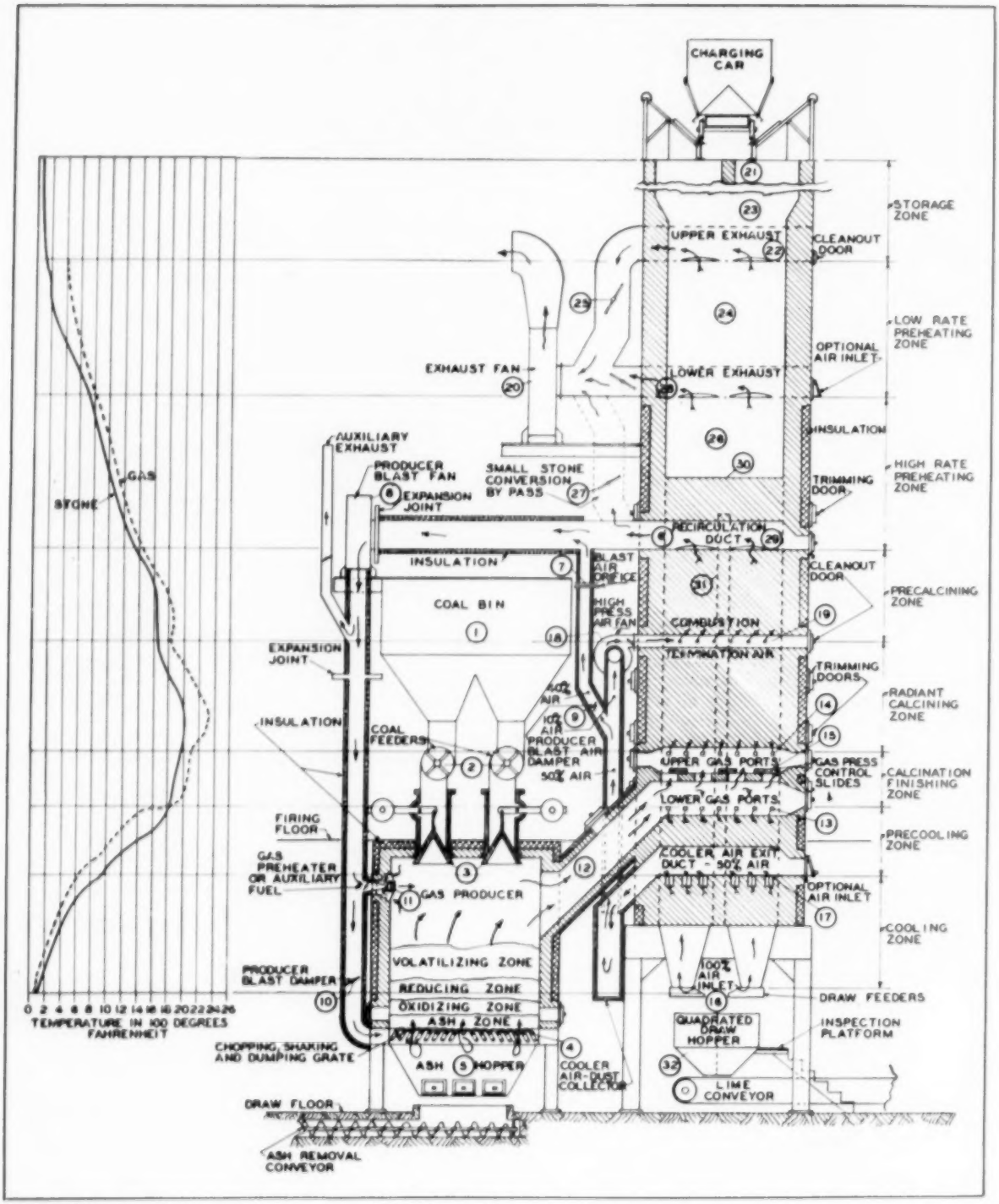

Integrated lime kiln (Azbe) gas producer system, 1953, showing kiln zones and gas circuits

Azbe lime kiln

Continued from page 94

zones. While gas is introduced at only two points, it is burned at three for all practical purposes. The third is where secondary air is admitted by injection into the gas stream rather than of gas into the air stream.

Please turn to page 100

In carrier landings, planes coming in at more than 100 knots are stopped in a split second. This amazing performance is made possible by having each plane hook onto one of several wire ropes stretched across the flight deck. Both plane and rope receive an almost unbelievable shock at the moment of contact. Needless to say, only top-quality wire ropes can be used for this application because . . .

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While your use of wire rope differs from this carrier application, *safety should be just as important to you.* For, although a "bargain" rope may save you money, it can cost you your peace of mind. So don't bargain with safety. Buy a rope that's a *quality* rope—buy Wickwire Rope. 5049

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Azbe lime kiln

Continued from page 98

With this triple firing system a much higher calcining zone of milder intensity is attained. The zone of temperature equilibrium usually existing in kilns between calcining and preheating is eliminated. This is very desirable but is not ordinarily attainable. Temperature control is also obtained by gas recirculation. The combined result is a kiln which can run for years rather than months.

The recirculating gas circuit. When CO_2 or H_2O use in the gas producer blast is limited, the gas has a high calorific value, but low volume. Such gas burned with the highly preheated air coming from the cooler creates very high temperatures in the almost completely burned lime which has low heat absorption capacity. This erodes the walls by slagging and tends to overburn the lime.

The low volume of the gases also causes imperfect distribution. While some sections of the hot zone of the kiln are very hot with overburned lime, others are relatively cool with lime containing core. Excessive temperatures cause excessive disintegration of some limes, resulting in packing and channeling.

In many kilns this condition was controlled previously by the Azbe patented hot zone recirculating system. Some spent kiln gas was withdrawn from the stone preheating zone at the highest possible temperature at which the fan could handle it without damage and was injected into the hot zone. The gas was blown in direct or mixed with producer gas or other fuels. This tempered its action. With some fuels, kilns were helped greatly. Temperatures were modified and heat distribution improved. It resulted in longer kiln runs between repairs and in higher quality lime with better appearance.

But the theory dictates that "for the recirculating stream to be only of good and no harm it must be withdrawn from the end of the dissociation zone at 1650 deg. F. and returned to this point without intermediate heat loss." This was never fully possible in practice and if it had, injecting the gas into the kiln direct would have served only the kiln and not the gas producer.

Then this simpler and better system was devised. One fan is eliminated and operating conditions for the other fan were greatly simplified. Gases are withdrawn from 6 at 1650 deg. F. but by premixing with producer air, they are only 800 to 1000 deg. F. at the fan. Since the producer has low bed resistance, a fan with high tip speed creates ample suction and pressure. The line is well insulated and there is little heat loss. Even though the recirculating stream is cooled by the producer air, essentially, it is still at its initial high temperatures. It passes through the producer, the calcining zone of the kiln, and returns to the point of its original offtake at the original temperature.

This is not precisely so since some heat is lost from the recirculating line, but this is offset by the good accomplished. The gas producer reactions are changed considerably, simultaneous oxidation and reduction occurs and clinkering is effectively prevented. The volume of producer gas is increased considerably and kiln temperatures as well as kiln gas distribution are brought under control. The two parts of the unit, kiln and producer, become interlocked. Waste gases of one contribute to the functions of the other. Heat that may have been wasted is now utilized and made capable of calcining. Refractory fusion and the overburning of lime is eliminated. While kiln temperatures tend to be lower, the volume and velocity of gases are greater and distribution is better. Thus in the whole heat transfer process, kiln efficiency and capacity are improved.

By recirculating a high temperature, high CO_2 containing blast in this way, the same result is achieved in the gas producer as in the kiln. An effective, long but mild, reducing zone is secured, while in the kiln the result is an effective, long but mild, calcining zone. This is further improved by other kiln operating features as that of the finishing zone, radiant zone, forced gas distribution, triple level firing and slip operation with cyclic automatic drawing. Most of these features have never been part of lime kiln operation and those that have been used, never had proper correlation.

The exhaust system. Gas flow is provided by the exhaust fan, 20. A suction is created throughout the kiln which pulls in air at 16. It draws air up through the cooler with the products of combustion and the CO_2 from the stone up through the remainder of the kiln.

The gases may actually be exhausted at the very kiln top at 21, or withdrawn at 22 with the upper part of the kiln constituting a stone supply. Thus, whenever lime is drawn at 16, the stone in the storage zone at 23 sinks into the active preheating zone 24. This storage zone may be as deep as 20 ft. and hold sufficient stone for an entire night's operation of the kiln even when it is operating at high capacity. The advantage of integral storage is that the gas temperature and volume at the fan will vary through a smaller range than if stone is charged to the kiln from outside at each drawing of the lime.

The average gas temperature is a factor of kiln thermal efficiency; the poorer the fuel ratio, the higher the gas temperatures. In high calcium lime the variation will be about as follows: (provided

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Azbe lime kiln

Continued from page 100

combustion streaks do not extend into the preheating zone and provided there is no secondary combustion, a common enough occurence in most ordinary cases of kiln operation.)

Million B.t.u. Per Ton of Lime	Mean Exhaust Gas Temperature deg. F.
4	500
5	640
6	750
7	830
8	900

However, the temperature at the exhaust fan will be less because the exhaust gases are almost always diluted with a large volume of air leaking into the system through the kiln stone charging door. These temperatures are before this dilution has occurred and are the mean temperatures. Actually the readings may be a couple of hundred degrees higher before fresh stone sinks down into the kiln and that much lower after charging. There is a rapid cooling of the gases by the cold stone.

Thus the temperature at point 22 can periodically readily reach 1000 deg. F. or even more, although there may not be any direct indication of this at the fan due to dilution. With most stone, this does not matter, but some that are very dense or that contain expandable silica, mineral nuclei or isolated pockets of water, tend to pop and break up when subjected to such rapid preheating suddenly. This creates undesirable fines and interferes seriously with normal kiln production.

An additional exhaust at 28 was devised to overcome this. By means of dampers (25) it is possible to draw some of the gas from the lower exhaust, "the hot stream," thus allowing only a portion to pass to the upper exhaust, "the cool stream." The effect creates a "low rate preheating zone." With this arrangement, heat sensitive limestone or other minerals such as alumina clay can be very gradually preheated to 1000 deg. F. or even 1200 deg. F. and beyond the disintegration point. Preheating in the "high rate preheating zone," (26) can then proceed safely at a rapid rate.

Small stone conversion. The kiln as shown is essentially a kiln intended for calcination of stone ranging from 3 in. and up in size. For this stone the combined calcining and preheating height needs to be 30 ft. or more. When this high, the kiln is not suitable for stone under 3 in. for resistance to gas flow is higher and draft requirements are too great. Normally it is desirable to have sepate kilns for large and small stone. But a convertible is possible if this is foreseen and if suitable provisions are made in the design of the hot zone to incorporate the small stone conversion by-pass 27. For large stone the gases would then be withdrawn through exhaust offtakes 28 and 22. For small stone withdrawal of the gases would be through 29 and possibly partly through 28. Bed resistance is reduced considerably but high temperature recirculation is sacrificed.

The kiln is specifically proportioned when calcination of small stone (1-to 3-in.) is proposed. Otherwise it is very much the same in arrangement as shown but the division walls 30 and 31 would be built in. The kiln then becomes a quadruple unit, each with its own lime discharge and independent, definite lime and gas flow channels.

Stone charging. Stone should be screened immediately before charging into the kiln. Charging should be done with as little segregation as possible. Charging to two, or better to four, piles in the kiln rather than just one is much to be preferred, so that there will be a minimum of stone size separation through rolling on the piles.

The smallest size of stone should not be less than half the size of the largest. Typical size ranges might be 1½ x 3 in. for small stone or 3 x 6 in. for medium large stone. While this may appear to be an unreasonably narrow range, it is not if calcination time requirements are taken into consideration, for the required time quadruples as stone size doubles. Oversize stone limits kiln capacity or results in production of core. Undersize stone reduces void space, and even a slight reduction in void space greatly increases draft requirements. Undersized stone is particularly harmful if unequally distributed, as channeling of gases occurs.

The system of charging into the kiln shown here is good. A gable bottom charging car discharges in two elongated strips. Cross-inserts in the kiln split these two strips into two sections and four stone heaps result.

Lime drawing. Lime drawing is by the "slip" system. Most plants in America used the more laborious "hang" system. To avoid hanging, stone must not be excessive in size and fuel distribution must be good to obtain satisfactory lime by the slip system.

Lime drawing is done by time-clock-controlled vibrating discharge feeders, but other mechanical means may be used. Small amounts should be drawn simultaneously from all four sections of the cooler at frequent intervals. Less frequent drawing may cause lime hanging in the hot zone. The lime is discharged into a quartered draw hopper,

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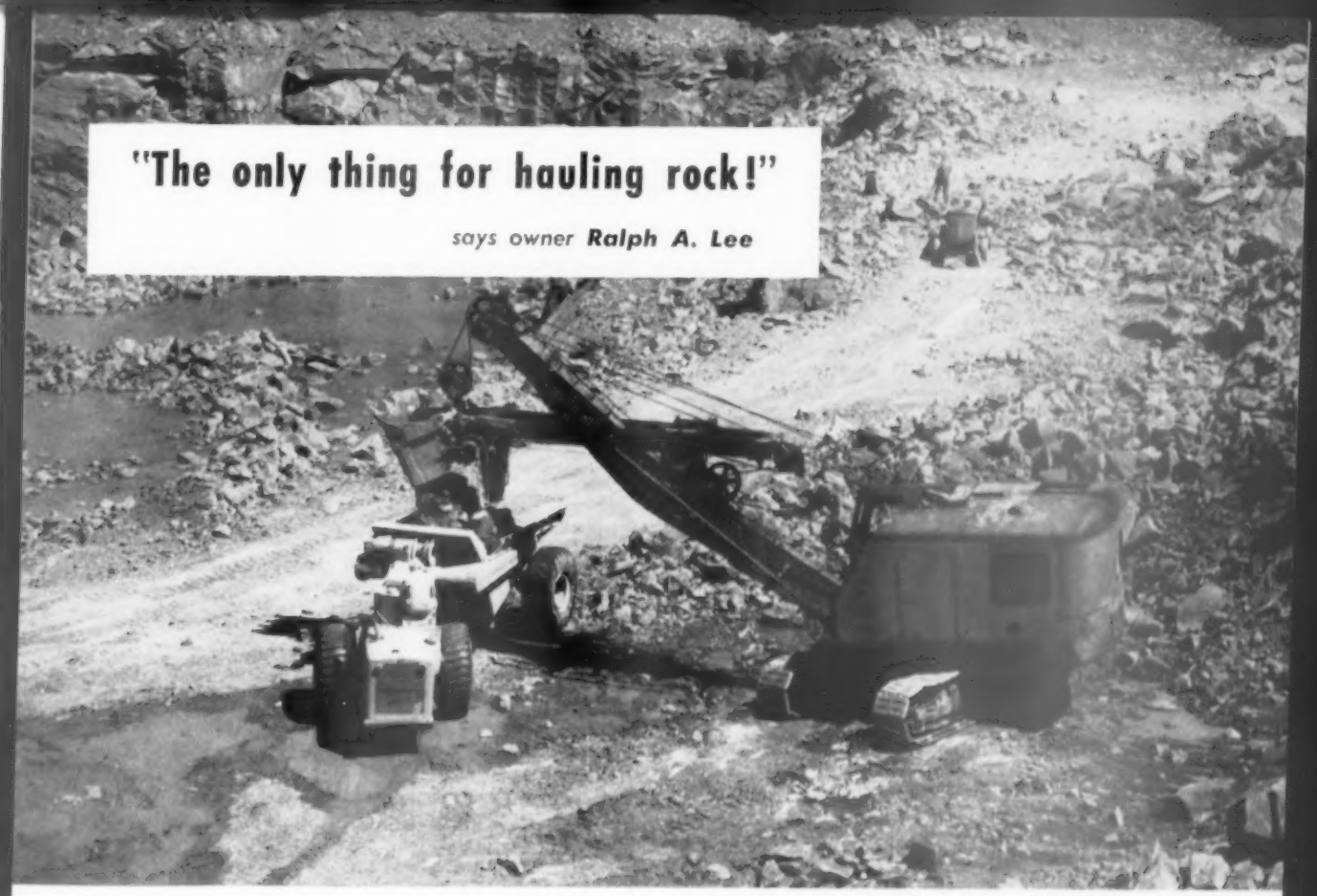

"The only thing for hauling rock!"

says owner ***Ralph A. Lee***

"We went through $52,000 worth of trucks in 5 years before we switched to Tournapull® Rear-Dumps," says Ralph A. Lee, owner of Millbrook Quarries, Inc., Broad Run, Virginia. "These 'Pull Rear-Dumps are the only thing for hauling rock. Trucks just can't compare!"

Supt. Douglas E. White adds, "Three 'D's' replaced ten trucks formerly used at our quarry. Tournapulls are the best equipment we ever had!"

3 "D's" haul 1,000 tons daily

The three D Rear-Dumps, which have 11-ton rated capacities, haul about 1,000 tons of limestone to Millbrook's crushing plant in an 8½-hour day . . . about 5,000 tons in a week.

Haul, approximately .5-mile long, leads up a steep grade for 300' out of the pit . . . then up a 1% grade the rest of the way to the grizzly. Rear-Dumps average 10 mph over the rocky, uphill route.

These Rear-Dumps, equipped with side boards, sometimes carry as heavy as 13 to 15 tons in some materials — according to Foreman Douglas E. White.

Reduce maintenance, tire costs

Because Tournapull Rear-Dumps have no hydraulics, no jack lines, no driveshafts . . . no frames, sub-frames, springs, or tie rods . . . most common causes of hauler breakdowns and expense are eliminated. Maintenance time is low, too, because there is no hydraulic mechanism to check . . . . only a few places to lubricate. Millbrook management finds that 30 minutes per day is ample for Tournapull lubrication and maintenance checks.

Tire expenses are lower on Tournapulls, also. Owner Ralph A. Lee says, "Switching from trucks to Tournapulls has cut our tire costs at least one-third."

"Easy to run! Smoother to ride!"

Operators, too, have reason to praise Tournapull Rear-Dump performance. James W. Riley is enthusiastic. "I like everything about these rigs," he says. "They're easy to operate . . . as simple to run as an automobile. I like 'em fine!"

If you have haul equipment problems at your quarry, you will want to know more about Tournapull Rear-Dumps. Three sizes: 11, 22, and 35-ton capacities. Write us for complete information on these sturdy, high production LeTourneau-Westinghouse machines.

138 hp Tournapull Rear-Dump hauls heaped load of rock up a 13% grade out of the pit. Three "D's" replaced 10 trucks . . . handled all the limestone mined at Millbrook Quarries.

DR-1181-Q-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

WHERE QUALITY IS A HABIT

Azbe lime kiln

Continued from page 102

32, where it can be inspected for amount discharged and for quality of the lime from each quarter section of the kiln.

The conveyor, which can be above or below the floor level, removes the lime from the draw hopper at intervals. This depends on the kiln producing capacity, on the size of the draw hopper, and on operating convenience. A series of these kilns would have one lime inspector who would observe the draw and who would control the feeders and operate the conveyors.

Kiln thermal efficiency. The lowest possible fuel consumption is assured from these kilns by the following provisions:

1. Effective recuperative cooling of lime with a deep cooler and maximum air passage.
2. Prolongation of the calcining zone and shortening of the midkiln thermal idle zone.
3. Complete combustion accomplished low, in the calcining zone proper, with a minimum of excess air and with less zonal overlapping.
4. Slip operation with frequent drawing, and fresh exposures. Active heat absorbing surfaces for maximum cooling of products of combustion.
5. No steam. Using hot producer blast for clinker elimination and isothermal kiln temperature control.
6. Improved gas distribution, with more level zone terminals and less channeling.
7. Insulation of kiln and producer walls with substantial thickness of castable insulating refractory.
8. Insulation of recirculating piping with mineral wool or glass wool insulation.
9. Arrangements conducive to higher capacity, leading in turn, to higher thermal efficiency.

Kiln lime producing capacity. High capacity is assured by the large volume of producer gas and its efficient distribution. High rate of gas flow, freely exposed surfaces of changing orientation, produce a more positive end point in the finishing zone. In addition, high thermal efficiency factors contribute to higher capacity.

Special features of kiln unit.

1. Compact unit system of integral gas producer and lime kiln.
2. Modification of producer operation through hot blast high in CO_2 from kiln.
3. Simultaneous control of producer and kiln temperatures by recirculation of gases.
4. Complete clinker elimination without extraneous endothermic injections.
5. Isothermal high temperature gas recirculation.
6. Special air activated clinker grate.
7. Submerged feed type of gas producer for wood gasification.
8. Gas preheater or auxiliary oil or natural gas fuel supply.
9. Quantitative air control to the gas producer system.
10. Double stage, 100 percent passage of air through lime cooler.
11. Double level firing with gas volume proportioning arrangement.
12. Calcination of lime "finishing zone" of median temperature.
13. "Radiant combustion" lime calcining zone.
14. High pressure secondary air injection for positive termination of combustion.
15. Sectioned calcining zone with means for independent lime draw.
16. Slip operation without hanging or trimming.
17. Automatic and timed continuous or cyclic drawing of lime.
18. Blended exhaust for temperature equalization of gas at fan.
19. Low rate stone preheating section to avoid thermal shock.
20. Alternate arrangement for kiln operation with small stone.
21. Thorough insulation of kiln and producer systems to avoid loss of heat.

The question will come up, "Is is necessary to complicate a system this way?" It is not complicating it if an arrangement completely ends the formation of troublesome clinkers, if kiln capacity is increased five-fold, if fuel consumption is cut in half, if a superior product is produced or if all of the stone in the quarry is used, including some of the inferior portions of the deposit. It is not complicating it if the arrangement facilitates operation, reduces manual labor, even though it may increase operator attention. This is precisely the current trend in the industry as a whole, "A higher output per man who is better trained and better paid."

The kiln system outlined here is covered by a series of domestic and foreign patents with supplementary patents applied for. This is as much for the protection of the lime producer as that of Azbe Corporation. It is only through cooperation with Azbe engineers during design and start-up of the operation that the full potential may be realized from the system by the user. The most recent patent granted was No. 2742276 which was issued April 17, 1956.

END

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Tournatractor moves in between shovel-swings to clean up spillage and doze blasted stone for easier loading. Shovel cycle is not interrupted, because of rubber-tired tractor's sure-footed speed to 17 mph on uneven pit floor.

Tournatractor handles dozing quickly . . . gets good bladeful of rock, moves about 2½ cubic yards in 30-ft. dozing run. Versatile machine handles many other quarry assignments, pushes in blasted stone, cleans up around stockpiles, pulls other equipment around quarry.

Rubber-tired tractor works fast on watery pit floor

A large Ohio quarry, producing 700,000 tons of limestone yearly, uses one rubber-tired Tournatractor to handle all clean-up and pit maintenance. The tractor covers 325 acres . . . maintaining and building haul roads, moving freight cars, pushing in toe of stockpiles, bunching blasted stone, cleaning around shovel.

6" of water, no barrier

A few days before these pictures were taken, heavy rains left as much as 6 inches of water on the quarry floor. Rolling easily on its big 21:00 x 25 low-pressure tires, the tractor maneuvered in and out of the watery loading area, handled its assignments quickly and efficiently.

A major Tournatractor advantage when working in rain and water is that all moving parts in its power train are completely enclosed. They operate in a constant bath of oil, sealed against moisture. Lubricants stay in to prevent corrosion and maintain machine's high-operating efficiency and low-maintenance cost.

"Beats crawler on rock"

Foreman Bernard Boli said, "Tournatractor has crawler beat all to pieces on rock . . . gets around 1¼-mile quarry easily. Our biggest reason for buying the Tournatractor was speed." And operator Charles A. Slover said, "Tournatractor is a wonderful machine for the operator. It doesn't beat you around like a crawler. Besides lubricating quickly, and being able to move six 45-ton-load cars, I like the ease of riding."

Perhaps you can use a 210 hp rubber-tired tractor

To handle widely scattered dozing, pushing, and clean-up assignments, let Tournatractor help you speed operations, save you money. Let us show you owner-verified performance records of Tournatractor on work similar to yours.

Versatile Tournatractor dozes overburden between cleanup and other assignments. Shovel in background removes 6' to 10' of overburden. Tournatractor quickly cleans stone shelf so that production shovels can move in.

Tournatractor—Trademark Reg. U.S. Pat. Off. T.997.Q.bw

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

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Employes report mechanical defects immediately so they will not be caught with a stalled truck or any condition that would result in a bonus cut

Safety programs

Continued from page 73

Rodgers, manager of the Chillicothe division and the program's biggest booster. No less enthusiastic about the plan is the parent company's president, Robert M. Patton. He visits all plants and operations frequently, talking with individual employes and urging them to keep up the good work. According to Mr. Rodgers, his enthusiasm is catching. The program covers the entire Chillicothe division, which includes a large sand and gravel plant, a ready-mix plant and a block plant at Chillicothe, and ready-mix plants at nearby Circleville, Waverly, Ironton and Springfield. Its success at Chillicothe suggests a possible adoption of the plan by other minerals-producing divisions in the near future.

Here's how the program got started. Safety experience in the Chillicothe division in 1953-54 was good, but not good enough for Mr. Rodgers. Too many small accidents were happening, and the manager realized that if continued they would result in poor employe morale and bad public relations. At the same time he could see that the workers were proud of their equipment and made an extra effort to keep it clean and neat. Here was an employe attitude, thought Mr. Rodgers, that could be developed further to advantage. He worked out a program that was simple to administer and that involved a minimum of paperwork, based on incentive bonuses. Its success has been outstanding.

The program is popular among employes. They're serious about it, and each employe considers himself a part of a team. "We work pretty much on an open-door policy," says Mr. Rodgers, "and any employe is free to make complaints at any time." There's little of that, though. There has been no case in which the judgment of the supervisor on a rule infraction has been questioned.

Benefits of the program are evident. Plants, equipment and trucks are neat and clean. Drivers are careful and courteous. It is not unusual to see a Basic driver, stopped at a railroad crossing while the train is passing, cleaning some part of his truck. The company encourages such practice. Each driver is allowed time every evening after work to clean, wash and polish his truck—and he's paid at overtime rates for it. "Some think we're foolish," said Mr. Rodgers, "but we've found that it pays."

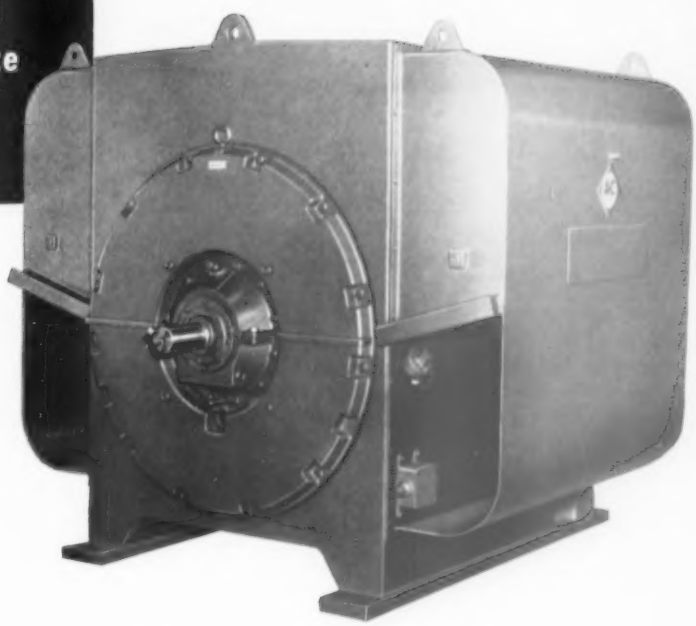
Customers call to praise the drivers, and report that they use good judgment in handling equipment on a delivery, that they are considerate and courteous and that they drive safely. That's what Mr. Rodgers wanted, and that's what his men are giving him.

The preventive maintenance program is a by-product of the safety-bonus plan at Basic. The company learned that employes reported defects in equipment immediately, particularly in trucks, because they didn't want to be caught with a stalled truck, unevenly worn tires, or any condition that would result in a bonus cut. So Basic integrated a maintenance plan with its regular repair setup. A bulletin board was put up in the shop, and drivers write their reports there every evening. A night maintenance crew inspects the trucks for defects and repairs them before the next operating day. Considering the high dollar

Please turn to page 108

Eliminate costly enclosures with Allis-Chalmers weather-protected MOTORS

Modern features
cut operating, maintenance expense . . . give MORE dependability



Here's a newly designed line of Allis-Chalmers weather-protected motors with the ability to "take" outdoor conditions. This means no expensive protective enclosures are needed . . . a big saving in plant or installation building costs.

Designed to meet defined NEMA requirements, these motors incorporate many important features which assure dependable outdoor operation:

- **Ventilating System** — Low velocity intake, vertical lift, change of direction and high velocity discharge of ventilating air keep rain, snow, sleet, dust and dirt out of vital parts.
- **Removable Air Ducts** — To facilitate inspection and maintenance of interior air passages, air intake ducts are designed for quick removal.
- **Stator Assembly** — Removable as a unit, it simplifies maintenance and minimizes downtime.
- **Split Sleeve Bearings** — Capsulized design permits access to motor interior without disturbing the bearings or their enclosures. Positive vapor seal is used on high-speed motors. Antifriction bearings are available for slow speed motors.
- **Proven Insulation** — Famous Allis-Chalmers insulation systems (Class A and B) are available. And, for extreme temperatures, or where high resistance to abrasion and moisture is required, Allis-Chalmers can provide the revolutionary *Silco-Flex* system.

Silco-Flex is an Allis-Chalmers trademark.

THIS DESIGN available in ratings from 250 to 900 hp. Other designs in larger horsepower ratings are also available. Contact your A-C sales office or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin. Ask for Bulletins 51B8606A and 05B7894.

A-5292

ALLIS-CHALMERS

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THE "pro" OF proper PRODUCTS

There's nothing amateurish about the way Plibrico refractories get the job done. That's because there are no cure-all refractories in the Plibrico line, but rather specific types and grades tailored to calcining, drying and processing furnaces.

Here, in brief, are a few for your work.

Plibrico Super Air-Bond—an air setting plastic for severe combustion conditions; develops high strength through entire thickness.

Plicast K-L Mix—a dense castable with exceptionally high strength, uniform at all temperatures; highly abrasion resistant.

Plicast 15-R—Similar to the above but for use under more moderate temperature conditions.

Ask your Plibrico man for complete details. Write, too, for our catalog covering your applications.

Plibrico REFRACTORIES ENGINEERING CONSTRUCTION

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Safety programs

Continued from page 106

value of an operating hour for trucks in the busy summertime, returns from this portion of the program have been tremendous. "We've extended the life of our equipment, too," said Mr. Rodgers.

The incentive bonus for employes from quarter to quarter is a major factor in the effectiveness of the plan. Total credits for hours worked and deductions for infractions are totaled at the end of the quarter for each man and posted. Few of the men get 100 percent for their bonus, but all try for it. Most of the bonus cuts are for bad housekeeping. So far, the maximum quarterly bonus paid has been $40 for 800 hours of work with no deductions. The average is $20 to $25.

The final quarter of the year ends on December 20. Then, bonuses for each employe for the full year are totaled and given out at a company party held the Friday before Christmas.

Basic's casualty insurance company, North America Companies of Philadelphia, gave a leather-cased honor roll card to each truck driver who had had no accidents at the end of the first year of the plan. This year, those who have driven two years without an accident got a two-year honor roll card and an attractive lapel pin. The casualty company also provides safety posters to put up around the plants, and supplies booklets on safe driving.

Results of Basic's safety-bonus program have shown up nationally. The company competes in the annual National Sand and Gravel safety contest, and has won certificates of achievement for 1955 and 1956—the two years the plan has been in operation. The firm has received similar certificates from the Industrial Commission of Ohio and from local safety organizations.

"I would highly recommend this program for others," Mr. Rodgers said. "We don't make it complicated so that it bogs down in details — and it works with benefits on both sides." Basic's plan is not affiliated with any union activity; it is strictly an arrangement between the company and the men.

In addition to Mr. Rodgers, these men help to administer the program for the company: Mr. T. M. Rhinehart, general superintendent, ready-mixed concrete; plant superintendents Walter Watkins, Chillicothe; Kenneth Cooper, Circleville; Paul Rice, Waverly; George Johnson, Ironton; and Leonard Parsons, Springfield. J. Warner is superintendent at the Chillicothe gravel plant and Ray Carroll is superintendent of the block plant. Charles W. Nelkirk is general sales manager of Basic.

END

NOW... DRILL 9" HOLES WITH THE NEW

JOY 59-BH CHAMPION

This world-famous pioneer rotary-air-blast-drill has adopted many of the features of its big brother, the Super-Heavyweight, to give you these advantages:

MORE STABLE DRILL STRING through use of round pipe . . . BETTER AIR CIRCULATION and cuttings removal . . . FASTER DRILLING—faster retraction of hydraulic feed averages total of only 3 minutes on a 51′ hole . . . EXTENDED 55′ MAST permits drilling 50′ hole without adding pipe . . . BETTER MOBILITY —hydraulically raised and lowered mast is left assembled during long moves . . . 9″ HOLE allows wider hole spacing, economical use of large diameter powder.

This all adds up to new records in low cost per ton of rock. Get the whole story on the 59-BH. Write to ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: Joy Manufacturing Company (Canada) Limited, Galt, Ontario.

Write for Bulletin 168-27

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PAVING BREAKERS • SHEETING DRIVERS • DRIFTERS • PORTABLE HOISTS • FANS AND BLOWERS • PORTABLE SAFETY LIGHTING

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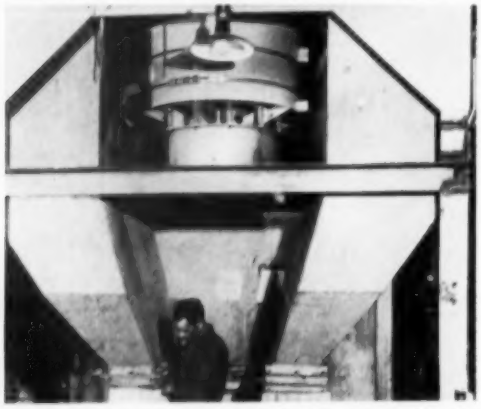
SWECO Separator Screens One Ton of Perlite per Hour for Leading Rock Products Company

One of the larger processors of perlite – a new lightweight "wonder mineral" used as a plaster and concrete aggregate – had a screening problem. Because the material weighs only 4 to 8 lb. per cubic foot, it tends to float. The screen unit had to fit into a restricted vertical space between existing cyclone collectors and bagging hoppers. Specifications called for a production rate of 500-1,000 cu. ft. of perlite per hr. A 48" diameter SWECO Vibrating Screen Separator was installed. The unit, operated with either one or two screens, provides two or three gradations of perlite as desired. For flexibility, the equipment was furnished with screens of 8, 10, 14, 20 and 30 mesh. Routine lubrication has been the only maintenance required in three years of operation.



Unique SWECO *Separator design imparts no vibration to supporting structure, permits dispensing of sized perlite from three levels into bins for bagging by processing company.*

Another large perlite processor installed a 48" diameter SWECO Separator equipped with 30-mesh and 80-mesh screen cloths–regularly producing 30 cu. ft. per hr. of minus 80-mesh material.

Efficient, accurate sizing by the SWECO Separator enabled these companies to produce perlite for many new applications and to increase sales and profit.

Screening Analysis and Recommendations Available

Your nearby SWECO District Engineer is available to help you with special screening problems. His "know-how" covers 200 different materials . . . wet and dry, coarse and fine, heavy and light. He will demonstrate, in your plant, how a SWECO Separator can screen your material economically and efficiently. No obligation, of course.

A complete data file on screening rock products plus a 22-page catalog are yours for the asking. Write for Bulletin 5-108-14.

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Engineers and Constructors . . . Manufacturers

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An efficient plant

Continued from page 77

is maintained at about 300 tph. with a rheostat feeder control mounted on the crusher house screening floor.

The material is first scalped on a 5 x 14-ft. Allis-Chalmers three-deck screen, which has 2½, 1⅝ and 1-in. openings. Rejects from each deck are fed respectively to a 30 x 18-in. Blake jaw crusher, a 4-ft. Symons standard cone crusher and a 4-ft. Symons shorthead cone crusher, while the minus 1 or 1⅝-in. gravel is taken by a 24-in. conveyor to the gravel screening tower. Products from each crusher in turn are collected on a common belt conveyor, then transferred to the second 5 x 14-ft. three-deck screen in the crushing plant. Oversize products are returned in closed circuit to either or both of the cone crushers; the middle products are belt conveyed to the stone screening tower; and the dust products, ranging from 1⅝ in. x 0 to minus ⅛-in. screenings, are belt conveyed to a concrete silo or to stockpiles. To minimize segregation in the dust product stockpiles and to effect dust control, the company employs stone ladders made from 18-in. steel pipe; ports are spaced on 5-ft. centers on opposite sides.

The gravel screening tower handles natural round gravel and the stone screening tower handles 100 percent crushed gravel. Each tower has a 5 x 12-ft. Ripl-Flo three-deck screen operated wet for production of three aggregate sizes. The bottom deck throughs are flumed to the 6-in. waste tank in the desanding plant. These products drop to silos or stockpiles straddling the blending tunnel.

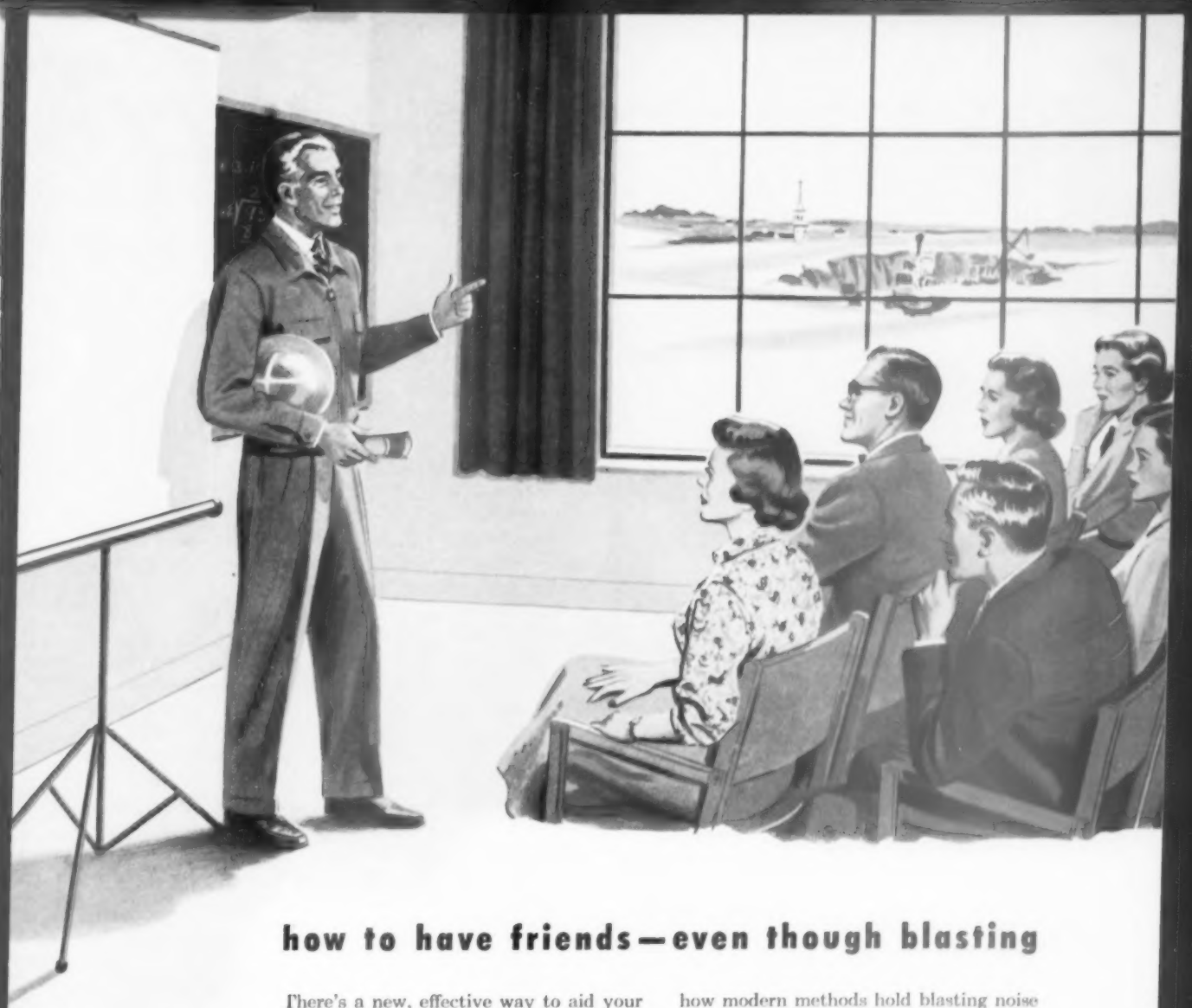
Electrical controls for the crushing plant facilities, the vibrating feeder and the gravel and stone screens are centralized on a panel board on the dry screen floor. Because of their remoteness, the gravel and stone screens must be started from the screening towers so that the operator can inspect each screen before starting. However, cut-off switches for these screens, as well as for all crushing plant facilities, are mounted on the control panel.

Another feature in the crusher building is the use of perforated plate for flooring material on the screen floor, which enables the screen operator to observe the feed to the three crushers on the floor below.

In the blending operation, there are no special feeders for charging the 30-in. x 628-ft. tunnel belt conveyor. The material is relatively free flowing, and accurate feed control can be attained

Please turn to page 112

Enter 1110 on Reader Card



how to have friends—even though blasting

There's a new, effective way to aid your public relations in communities where you are blasting. It's the interesting, informative sound film, in color, entitled, "*We're Blasting Near You.*"

When you show this film to PTA meetings, service clubs and other civic organizations, you can prove that you're a good neighbor . . . that blasting, while necessary, is nothing for people to be alarmed about.

"*We're Blasting Near You*" shows how modern millisecond delay techniques eliminate old-fashioned, jarring explosions . . . how modern methods hold blasting noise to a muffled minimum, and make vibration unnoticeable. In a friendly, noncommercial way, the movie shows yo efforts to be a good citizen in the community.

You can show this movie to any age group. It is accompanied by a kit containing news releases, sample speeches, safety posters and other helpful material which will make your public relations meeting a success. Write for available dates, and show "*We're Blasting Near You*" in your community!

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BUT don't sashay that shaft-mounted speed reducer!

With the American Shaft-King there's no swing-and-sway for belt take-up—no rock-and-roll of the reducer housing that changes the oil level and may mean too much or too little oil! You *know* the oil level is exactly correct—you *know* those accurately machined gears and bearings are getting the protection they need! You *know* thermal conditions inside the case are ideal!

Shaft-King's superior design has been proven by the experience of over 100,000 tough field applications.

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- The internal backstop is positive-acting *pronto* —there's no wear on parts either!
- American's overload release assures safety for motor and driven machine, running forward or reversed, against overloads, jams, shocks.
- Every gear is precision-made, flame-hardened and electronically tested right in the American Pulley factory.
- A full range of sizes is available—from 5 to 350 R.P.M., from fractional to 40 H.P.
- Shaft-King is compact and trim. Its appearance reflects its superior design.
- Full stocks of all American Power-Transmission Equipment are carried by distributors in every key industrial area.

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An efficient plant

Continued from page 110

simply by varying the gate openings. Segmental gates, 34 in all, are used. Each can be opened and securely locked in 1-in. increments up to a maximum opening of 15 in. To produce the various blended products, the company has developed a table of gate openings. For example, six holes of grits plus 13 holes of masons sand yields concrete sand. Ten holes of 1 x ½-in. and four holes of ½ x 3/16-in. makes No. 4 gravel.

After blending, the material is conveyed to either one of two four-compartment truck loading silos. A 5 x 12-ft. Ripl-Flo two-deck rinsing screen, mounted over the silos, is available for final washing of the gravel sizes and the sand products bypass the screen. The screen has a top deck with ½-in. openings, and a bottom-deck with 3/32 x ⅜-in. openings. Tailings are flumed to a waste pond.

Blended products, particularly 60-percent crushed gravel, may also be stockpiled ahead of the loading silos. This is effected at a transfer house beyond the tunnel conveyor, with two 30-in. x 60-ft. boom conveyors delivering to the stockpiles.

Reinforced concrete was used in construction of the reclaiming tunnel and the eight storage silos. Tunnel dimensions are 6 x 6-ft., 560 ft. long, with 12-in. thick walls. The silos, poured in 7-ft. lifts, measure 24 ft. in diam. and 44 ft. high. Each has a capacity of 500 tons.

All material is shipped by truck. Loading from stockpile is handled by a Michigan 125-A front end loader, a Lorain ¾-cu. yd. crane and a North West No. 6 crane with clam. Truck loads are weighed on a 50-ton 10 x 45-ft. Fairbanks-Morse scale.

Attesting to the efficiency of the American Materials plant is the fact that only 18 operating personnel are required. Among these are four in the pit, one mud picker and six handling the sand and crushing plants, the blending and also the loading operations.

Walter B. Evans is plant manager, Paul J. Sullivan, superintendent, Tony Cecil, foreman and Lloyd Saffell, office manager. Mr. Evans is also manager of American Materials' three other plants (two slag and one sand and gravel) in southwestern Ohio. J. C. Patty, executive vice-president and chief engineer, was largely responsible for plant design. W. I. Thieme is district manager. Greenville Manufacturing Works, an affiliate of American Aggregates Corp., fabricated the structural steel for plant construction.

END

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Power-Transfer Differentials put

MORE PUSH in a PAYLOADER

more TRACTION means more PENETRATION

There's more punch — more push — more penetration with a "PAYLOADER" because automatic power-transfer differentials assure better traction in adverse conditions — on loose underfooting, sand, mud, snow and ice. If one wheel slips, more power is automatically transferred to the opposite wheel, enabling a "PAYLOADER" to keep driving forward, where ordinary tractor-shovels spin helplessly. You get traction and *action* instead of wheel-spinning, time-and-power-wasting *inaction.*

These special, more-costly but more-effective differentials are but one of the many reasons why you get more tractor-shovel when you buy a "PAYLOADER" . . . why they dig more, carry more and deliver more yards per day than any comparable size tractor-shovel. You also get no-stop power-shift transmissions, planetary final drives, power-steer, 4-wheel power brakes, hydraulic load-shock-absorber . . . and you get the exclusive "PAYLOADER" bucket motion with 40° tip-back at ground level plus powerful pry-out action.

Your "PAYLOADER" Distributor is anxious to prove that a "PAYLOADER" can out-perform anything in its class. He wants you to try one on *your* work and let *you* be the judge. Call him today!

Power-Transfer Differentials...

automatically direct the most power to the wheels that are gripping — whenever the other wheels tend to spin on mud, loose sand, ice, snow, etc.

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Send full data on 4-wheel-drive "PAYLOADER" units.

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Name

Title

Company

Street

City State

65

Aluminized fabrics

Continued from page 79

to work in. This is important, for when precipitators become choked with dust, it is a hot, dirty job for two men to clean them out. When the clean-out ports are first opened the dust cascades out, sending choking clouds of heat and micron-sized dust rolling out into the air.

For a long time the company had used untreated cotton suits for the cleaning operation, and they had experimented with asbestos and leather clothing for the workers. All of these fabrics were unsuitable for they either dried out and cracked from the hot dust, wore out prematurely or transmitted an uncomfortable amount of heat through to the wearer.

The new aluminized clothing now used when cleaning out the precipitators includes cover-alls with built-in feet like old fashioned sleepers to be put on over regular working clothes and a three-quarter length jacket. A helmet with a mantle to protect the neck and shoulders and a pair of duck gloves complete the ensemble.

Continued experience has indicated a need for additional protection. Drifts and piles of dust on the floor retain an uncomfortable amount of heat which penetrates the cover-all feet and shoes of the workers. If the feet of the cover-alls were made of aluminized asbestos fabric this heat condition might be reduced or eliminated.

This same company is planning to equip their kiln maintenance workers with aluminized cloth jackets. While one kiln is down for maintenance the kilns on both sides are usually operating at full capacity and radiating a great deal of heat. They expect that the new garments will provide a great deal of protection for those who are working between the kilns.

Another possibility for the use of aluminized fabrics in a cement plant would be as curtains between kilns on the firing floor. Curtains would protect the operating crews from radiated heat, as well as from hot blasts whenever ports must be opened or firing heads pulled back.

The new metal treated fabrics are so new that their full possibilities are still untried. A number of operating plants are experimenting with different applications. But wherever workers are exposed to dust, radiant heat or a combination of these conditions is an opportunity to investigate the great promise of these fabrics to provide adequate protection.

END

Hendrick, Pioneer Perforator of special quality steels for over 81 years, can really cure your vibrating screen problems! Hendrick's wide experience in selecting and specifying the best analysis of steel for the aggregates industry plus their unlimited experience in perforating plate gives you a combination 1+1=2 that can't be beaten! Hendrick Perforated Plate not only stands up longer, but affords more accurate sizing. No other screening medium can compare to it for maintained uniformity of mesh, for non-blinding clearance and for long trouble-free life. For details write to Hendrick, today!

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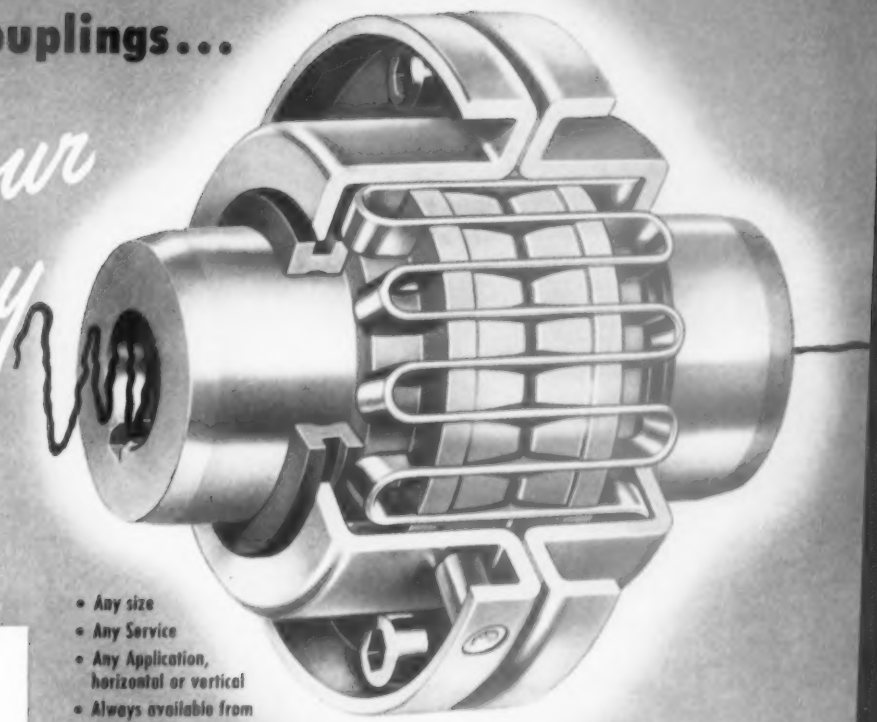
Falk Steelflex Couplings...

Protect your machinery in 2 ways



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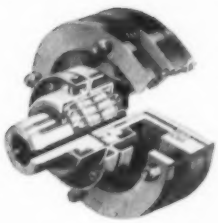
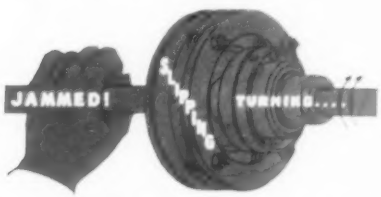


Falk Controlled Torque Couplings prevent damage from overloads

In applications where danger from overloads exists, use the FALK Type FT Controlled Torque Coupling. The Type FT has all the features and advantages of standard FALK Steelflex couplings—and, in addition, has an adjustable friction slip clutch, enabling the operator to set the coupling to slip at any predetermined overload.

This controlled-torque principle not only prevents transmission of dangerous shocks and limits overloads; it eliminates the breaking of shafts caused by jamming of driven equipment.

An outstanding advantage of the Type FT Coupling is that, as soon as the cause of the overload is removed, the entire coupling will rotate and transmit power without replacing parts or repairing coupling.



There's real economy in using Type FT Controlled Torque Couplings. Many users have reported that these couplings paid for themselves the very first time they slipped (under overload) because of the protection against damaged driving or driven machinery!

...cost less per year of service!

You get *double protection* when you connect your driving and driven machinery with a Falk Steelflex Coupling—the all-steel coupling with the exclusive grid-groove design! First, its *torsional resilience* smothers shock and vibration; and second, the Steelflex design prevents damage and lowered efficiency by accommodating shaft misalignment.

Why have increasing numbers of key men in industry standardized on Falk Steelflex Couplings? Their experience has proved that Falk Steelflex Couplings prolong the service life of their machinery... are trouble-free and need minimum maintenance . . . are easy to install, lubricate and disconnect . . . and *cost less per year of service* than ordinary couplings.

One basic Steelflex design—the type F, in its many sizes—is adaptable to more than 90% of all industrial applications. For applications involving danger from overloads, Modified Type FT Controlled Torque couplings (see column at left) are ideally suited. There are numerous other special or dual purpose Steelflex couplings for unusual applications. **Write to Department 247** for engineering bulletin, including selection and dimension tables.

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MANUFACTURERS OF:

- Motoreducers
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INVITED

For more than ten years, the CONCRETE PRODUCTS Section has been an important part of ROCK PRODUCTS Magazine. Beginning in June, CONCRETE PRODUCTS will be published as a separate magazine devoted exclusively to the interests of concrete products and ready mix producers and manufacturers.

Every producer of concrete products or ready mix concrete may continue to receive CONCRETE PRODUCTS without charge by returning the coupon below completely filled out, signed, and attached to his business letterhead.

All others who cannot qualify as a manufacturer or merchandiser of concrete products or ready mix concrete may also receive CONCRETE PRODUCTS at a nominal $3.00 per year rate, see coupon.

Please Attach Filled-In Coupon to YOUR BUSINESS LETTERHEAD
(This is required for Circulation Audit purposes).

The principle concrete product (s) manufactured by my company is/are indicated "1", "2", "3", in order of importance below.

_____ Block _____ Ready mix Concrete

_____ Masonry Units _____ Pipe

_____ Prestressed Units _____ Precast Units

_____ Other (What?) _____

Please send me CONCRETE PRODUCTS "Free".
My qualifications as a manufacturer are listed above.
Please send me CONCRETE PRODUCTS for $3.00 per year.
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List other people in your organization to receive CONCRETE PRODUCTS at your company address

Name _____ Title _____

Name _____ Title _____

Name _____ Title _____

List other qualified people separately.

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CONCRETE PRODUCTS
79 West Monroe St., Chicago 3, Ill.

Grindability

Continued from page 91

with highly efficient separation at 200 mesh by screening, with constant ball charge, and mill speed. This similarity can be checked by screening the equilibrium product on a 325-mesh sieve, or by making other size distribution or surface area measurements on it.

"Where appreciable difference exists between widely different materials they are usually compensated for by corresponding differences in the size distribution of the feeds. It is not necessary for accuracy that all minus 200-mesh products have the same size distribution, but only that the feed and product distribution slopes have the same relationship to each other. This is almost always the case."

Feed and product slopes are similar, as shown in Figs. 1 through 4, and results are accurate even though all product material does not have the same particle size slope.

From the point of view of grindability, raw material and clinker have been shown to be widely different materials by the tests. According to Bond, then, it is not surprising for them to have widely different particle size slopes. The average of the percent of minus 200-mesh material in the raw material feed was 8.04 percent which was twice as much as the 4.17 percent average for clinker.

Fig. 5 shows the Blaine surface area of a limestone and a clinker plotted against periods of the test. For this limestone it seems there was a fraction of the material that was softer and more easily and finely reduced than the rest of the material. During the first period there was a larger amount of the soft fraction present than at any other time. It was easily reduced to product size and although the grams produced per revolution were low, the product material was very fine.

After several periods, the hard fraction being returned to the mill built up in the circulating load. The product material and the surface area became more uniform as did the grams per revolution. As the curve sloped downward and leveled off, the circulating load reached equilibrium. The same thing happens in a commercial closed-circuit raw mill during start-up.

The curve for the clinker was almost a straight line because clinker was a more homogeneous material than limestone. There was no soft fraction in the clinker that was being easily reduced in the early periods. All minus 200-mesh material was of the same fineness regardless of the period in which it was produced.

Please turn to page 118

Enter 1069 on Reader Card

245 hours less greasing time...
245 hours more profit time EVERY YEAR!

Time saved by 1,000-hour lubrication intervals on your Allis-Chalmers tractor adds up to 245 hours every year—an extra month of production!

On truck wheels, support rollers and idlers, an exclusive combination of positive, spring-loaded seals and tapered roller bearings keeps out dirt and moisture, prevents loss of lubricant.

For 1,000 tractor work hours, you can forget about every grease point below track level. When it's time for servicing, simple low-pressure flush lubrication replaces old grease completely, eliminates seal popping, prevents damage to seal faces. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

IT'S SIMPLE ARITHMETIC!

	Other Tractors	Allis-Chalmers Tractors
No. of greasings per year (5,000 hr)	up to 500	5
Greasing time (av. conditions)	½ hr	1 hr
Time spent greasing	up to 250 hr	5 hr
PRODUCTION TIME GAINED . . . 245 HOURS EVERY YEAR!		

ALLIS-CHALMERS

Engineering in Action

Grindability

Continued from page 116

Duplicate tests were run on seven raw material and six clinker samples. The allowable difference in duplicate runs was three percent, and in 26 tests the average difference between duplicate runs was 2.03 percent, with a maximum of 5.04 and a minimum of .74 percent.

Fig. 6 is a bar graph of the grindabilities of all materials tested. Grindability of clinker ranged from .938 to 1.210 grams per revolution, with an average of 1.095 gpr. For raw material the spread was much wider, from .776 to 2.85 gpr. Shale had the highest grindability of 2.85 gpr.

Marine shells in the form of oyster shell, marl and coquina shell, were more troublesome and harder to grind than any other material, including clinker. Originally only one sample of marine shell was on hand, but because of the ball coating problem encountered samples of marine shell were obtained from two additional plants. The circulating loads in all three cases had to be increased above 250 percent in order to avoid ball coating. Increasing the circulating load caused the screening material to be slightly coarser. Ball coating caused the number of revolutions per period to increase continually, and the grams per revolution to decrease continually. It was also evidenced by a pronounced decrease in the noise made by the mill.

As an aid to avoid ball coating it was found that all raw material, marine shell in particular, must be oven dried at approximately 220 deg. F. for several hours before grinding.

Industrial experience in heating oyster shell in a rotary dryer at high temperature initiated the investigation of marine shell grindability as influenced by heating. Marine shell has a peculiar trait of becoming easier to grind after heating. This does not mean the material has to be fed to the mill while heated. The material can be heated, then cooled before grinding and the grindability is still increased. At present, this is not an important matter since all marine shell used as raw material in the industry is ground wet. However, since several tests have been made to check this particular phenomenon, the results will be presented and explained.

Marine shell used as raw material for the manufacture of cement is composed of both organic and inorganic material. This material is secreted and deposited in layers as the shell grows. Calcium carbonate, $CaCO_3$, is extracted from the sea water where it exists as the soluble bicarbonate, $H_2Ca(CO_3)_2$.

When shell material is heated at temperatures

Please turn to page 121

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Grindability

Continued from page 118

below the calcining temperature of 1,650 deg. F., the calcium carbonate is unaffected but the organic part of the material is burned if the temperature is high enough. The destruction of the organic material reduces the bonding of the calcium carbonate, rendering it easier to grind.

Five tests were run on oyster shell. The temperatures of preheating the material were increased for each succeeding test, starting with 212 deg. F. and extending to 1,250 deg. F. Fig. 7 shows grindabilities to be directly proportional to heating temperatures between 500 and 1,250 deg. F. At 1,250 deg. F. the material crackles and pops, suggesting expansion of the organic material.

F. C. Bond says, "The Work Index should be constant within experimental error over all size ranges for a homogenous material reduced at the same relative mechanical efficiency." However, truly homogenous materials are hard to find, or so it would seem from Bond's data on tests run at various meshes of grind.

Only two tests were run at a mesh of grind other than the standard 200 mesh. The reason for this was not to find out if the work indices would be the same, but to eliminate ball coating. At 200 mesh, ball coating "fouled up" the results. In an effort to prevent ball coating the mesh of grind was changed to 150 mesh and then to 100 mesh. The work index decreased in both instances without trouble from ball coating (See Table 2). This indicates that oyster shell is not very homogenous.

Table 2—Effect of Mesh-of-Grind

Test No.	Material	Mesh of Grind	Grindability G	Work Index
23	Oyster Shell	200	0.450	26.45
25	Oyster Shell	150	0.710	21.70
24	Oyster Shell	100	1.246	16.30

No further tests were run at various meshes of grind because it was found that ball coating could be prevented more readily by increasing the circulating load.

An increase in apparent grindability as circulating loads increased, was due to the increased efficiency brought about by the early removal of the product material from the mill. This has been proven in industry where increased circulating loads have given increased grinding mill capacity.

Increasing the circulating load resulted in a coarser product, where lower surface area indicated larger particles. The increase in particle size

Please turn to page 122

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Grindability

Continued from page 121

with an increase in circulating load was due to particles being removed from the mill before they could be overground. The screening took place more frequently and a larger percentage of the product material was near the 74 micron size of the separating screen. As circulating loads decreased, the periods were run for a greater number of revolutions. Particles ground to the product size early in the period were overground during the rest of the period.

A complete chemical analysis was made of the seven clinkers involved in this study and the potential compounds were calculated. Each item was plotted against grindability. The silica ratio seems to be the most important factor influencing grindability. Fig. 8 shows a direct relationship between grindability and silica ratios with grindability decreasing as silica ratios increase. C_3S and SiO_2 seem to have the same influence.

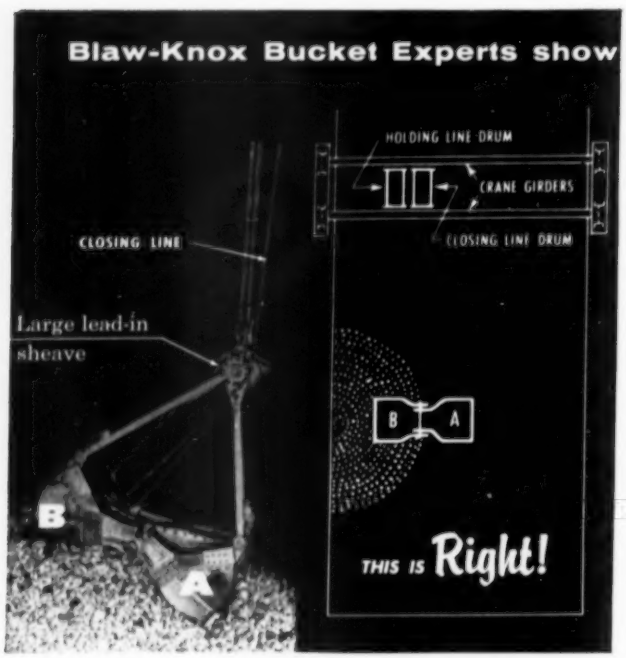
Figs. 9 and 10 indicate that grindability is directly proportional to the percent of Al_2O_3 and Fe_2O_3, respectively. In general, C_3S, C_3A and C_4AF show this same influence on grindability. No other factors investigated had any consistent or significant effect on grindability.

Calculations of the approximate amount of power required for grinding several sample materials have been made by use of the Work Indexes and Bond's equation. The comparison of calculated figures with the actual power figures was very encouraging and the results are shown in Fig. 11. In each case the light bar represents the calculated and the dark bar the actual figure.

The closeness of the calculated to the actual power figures is striking and certainly more than approximate. This agreement of the figures reflects the good grinding operations that are being carried out at these three plants, since a comparison of the calculated with the actual power requirements indicates the relative grinding efficiency of the mill.

The very few power calculations that have been made in connection with this project are not enough to prove or disprove the validity of calculations made. However, when these few figures are considered along with the large amount of data accumulated by Bond in support of his "Third Theory," they prove that these calculations can be relied on, and lend authority to this method of measuring grindability.

END



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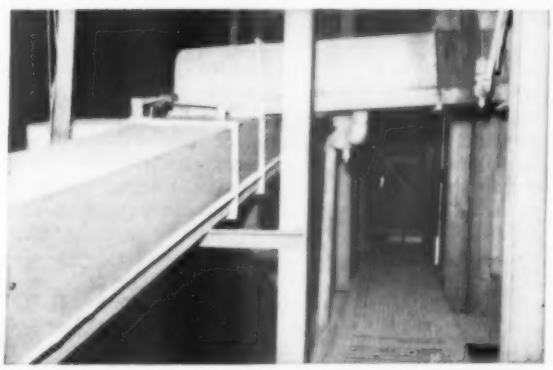

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Plant preparation for automatic control

By LEO WALTER

ENGINEERS often get the job of converting a "hand-operated" manufacturing process to one that is "fully automatic." Reasons may be that top management wants to increase output, or to make a better product with high quality and uniformity. Behind these advantages inevitably lies the prospect of better plant efficiency and productivity, using perhaps less labor. Economic benefits that can be expected from the introduction of automatic processing are important.

The problem may be rather simple if "automation" is to be applied only to a single machine or piece of plant equipment. It may become more complex if the manufacturing process consists of several phases effected on a range of machines dealing in sequence with material or goods. It can become most complex if automatic measurements during intermediate stages are added, and/or automatic transfer of the processed material from one machine to the next by mechanical handling operations. This article will not discuss the more complicated forms of "automation."

Most problems in introducing automatic control to a plant center around simpler problems. These may include making a single piece of equipment automatically controllable, or equipping three or four machines with process-control instruments. In some industries, a separate room is used for centralized plant control. In some parts of oil refineries (Fig. 1), supervision and automatic control of a certain section of the plant is continuously, automatically controlled and checked from central control rooms. Conventional control panels and graphic instrument boards are widely used now in oil refineries to correlate phases of catalytic oil-cracking operations. The practice eliminates to some extent manual control of valves in the plant. This development in oil refining can be regarded as a promising forerunner of "automation" of other branches of industry. It has resulted from the cooperation of engineers, chemists and production experts on a grand scale.

Problems of introducing automatic process control are usually threefold. First, the engineer must know the "controllability" of his plant in general, and also of each piece of plant equipment to be fitted with automatic-control instruments. Second, the attainable accuracy of automatic control has to be specified, consideration being given to economic factors and to reliability. Last, but not least, improvements in design of existing or new plant equipment may be highly desirable, sometimes indispensable, to make control easier and more efficient. Also, it may be necessary to alter the processing method before switching from "hand" to "fully automatic" control. In other words, plant operators often must be trained carefully to work with automatic control instruments. Before discussing this main theme, it may be wise to explain "controllability" and how to assess the "achievable accuracy of automatic process control."

Knowledge of controllability of plant equipment is important to the progressive plant engineer. He knows that plant equipment in general reacts variously to control by hand. For example, two processing vessels, equipped for heating a liquor with either steam coils or with direct steam blowers, may have the same steam-supply pressure, the same diameter of steam supply pipe, and the same type of hand-control valve for throttling steam admission. But they can react differently to, say, two turns of the steam-control valve. The main factors in this instance—producing a different process reaction in liquid heating—include different inherent "process time lags" of the two processing vessels.

Such time lags depend on the volume of liquid to be heated, the rate of heat transfer, design of the heating coil or steam blower and their positions, shape of vessel, and heat dissipation within the heated liquid. In addition, fluctuations of steam-supply pressure, a varying amount of immersed material to be processed and other factors can influence accuracy of actual control achieved. All ultimately influence "process controllability" which may be good, bad or indifferent. The engineer must know what degree of closeness of control reasonably can be expected when installing a temperature regulator that is reasonably priced, to make automatic control profitable.

Assessment of controllability is likewise of great importance. Choice of

(Continued on page 126)

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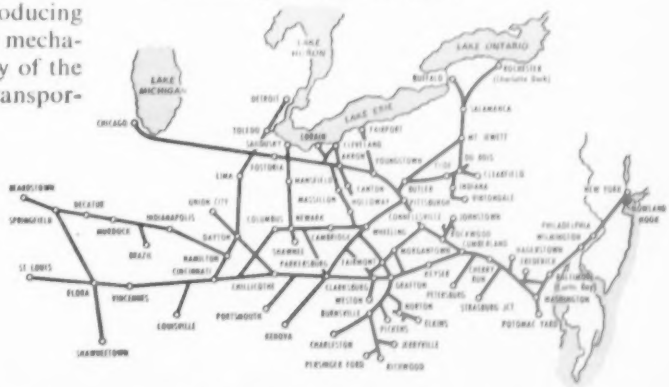

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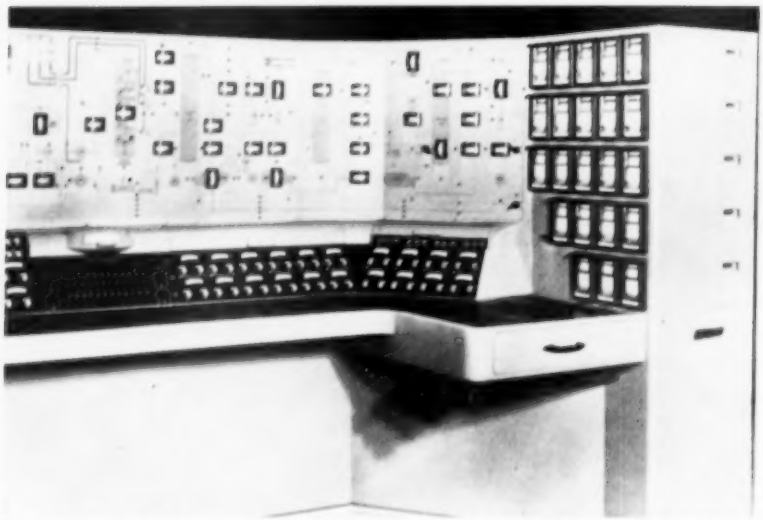

Fig. 1: Section of console type graphic control panel with small indicators in flowsheet

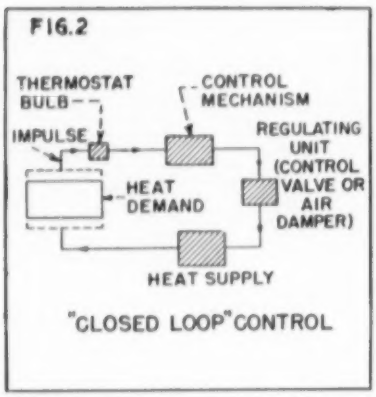

Fig. 2: Control system consists of "closed loop"

AUTOMATIC CONTROL

(Continued from page 124)

suitable control instruments has to take these factors into consideration: (a) on the technical side, use of the right mode of control (two-step or on/off, proportional, integral, etc.), ease of installation and maintenance, whether the control instrument should be self-actuated or power-operated (pneumatic, electric or electronic), and whether the instrument should be non-indicating, indicating, or recording, or a combination of these; (b) on the economic side, how much expenditure will be repaid by the actual control operation, and in what period of time. In some instances experience can indicate the percentage of the value of output to be spent on control. Where frequent spoilage of material results from hand control, statistics will reveal the allowable economical expenditure for instrumentation.

It may surprise the non-expert on instrument manufacture and use to know that the only practical method devised now for assessing plant controllability is a series of experiments with hand control. Only one prominent American instrument maker has so far devised a set-up of instruments in the laboratory for imitating working conditions that allows a direct prediction of the right mode of control to be used. All other methods are a combination of mathematical calculations with hand-control tests in a hand-controlled plant, together with results of actual experience in control of similar plants or with equipment having similar control characteristics. The above boils down to the exercise of intuition, guesswork and memory, in combination with more scientific mathematical calculations.

Preparing for equipment control and the problem it presents may be put simply: Haphazard fitting of an automatic control instrument to an existing piece of plant equipment cannot achieve the most desirable effect. The correct type of regulator must be chosen, preferably with the help of an expert, to achieve maximum possible closeness of control at a reasonable first-installation cost. Assuming that a suitable regulator type has been selected for a particular control problem, it is advisable to look closer into plant design and operation. Improvements to be made may include: (a) a shortening of process-time lags; (b) an improvement of process-reaction rate; (c) the adaptation of plant operation to controller characteristics; and (d) sometimes a modification of working conditions in general, such as a steadier loading of equipment, more uniform quality of goods entering the process, etc.

A few practical examples may help to explain. Installation of a simple self-operated temperature regulator proved unsatisfactory in a large steam-coil-heated process vessel until it was found that excessive process-time lags counteracted the control action. A simple test with hand control, including the observation of three test thermometers placed at various locations in the liquor, disclosed the presence of excessive process-time lags.

Process-reaction rate, i.e., the rate of heating, was slow, which indicated the desirable use of a larger steam coil with a more suitable steam trap having a steam-locking prevention device. Temperature readings also indicated that heat distribution within the liquor was uneven and sometimes sluggish. A different shape of the heating coil improved this.

Observation of a pressure gauge in the steam supply to the vessel showed much steam-pressure fluctuation during a working day, with low supply-pressure during peak periods. The remedy was to increase the heating surface of the new steam coils so that the lowest steam supply-pressure was adequate. Also, a simple steam reducing-valve, set at this pressure was fitted into the steam main.

To avoid cold "dead spots" in the large vessel, a small circulation pump was ultimately supplied. Here, use of one or two clamp-on stirrers with motor drives was not practicable. Otherwise, they would have produced the desirable quicker heat distribution, and would have reduced the excessive heat-transfer lag in the liquor.

The survey also disclosed that this large processing vessel was one of the biggest steam consumers in the whole plant. Its use caused a condition of near-starvation of steam in other departments when starting it from cold. Staggering of various process-heating times in the whole plant proved beneficial throughout, and relieved the boilerhouse of temporary overloads. Obviously, cost of preparing this piece of plant equipment for efficient automatic control was not low. But nature of the processed material, necessity for good thermostatic control, and desire of plant management to have a sturdy and simple control outfit was enough justification for the above measures. The action taken was fully successful and avoided trying to use a more costly and elaborate power-operated control system, which otherwise would have been necessary to cope with a less controllable process system.

A practical example may help to

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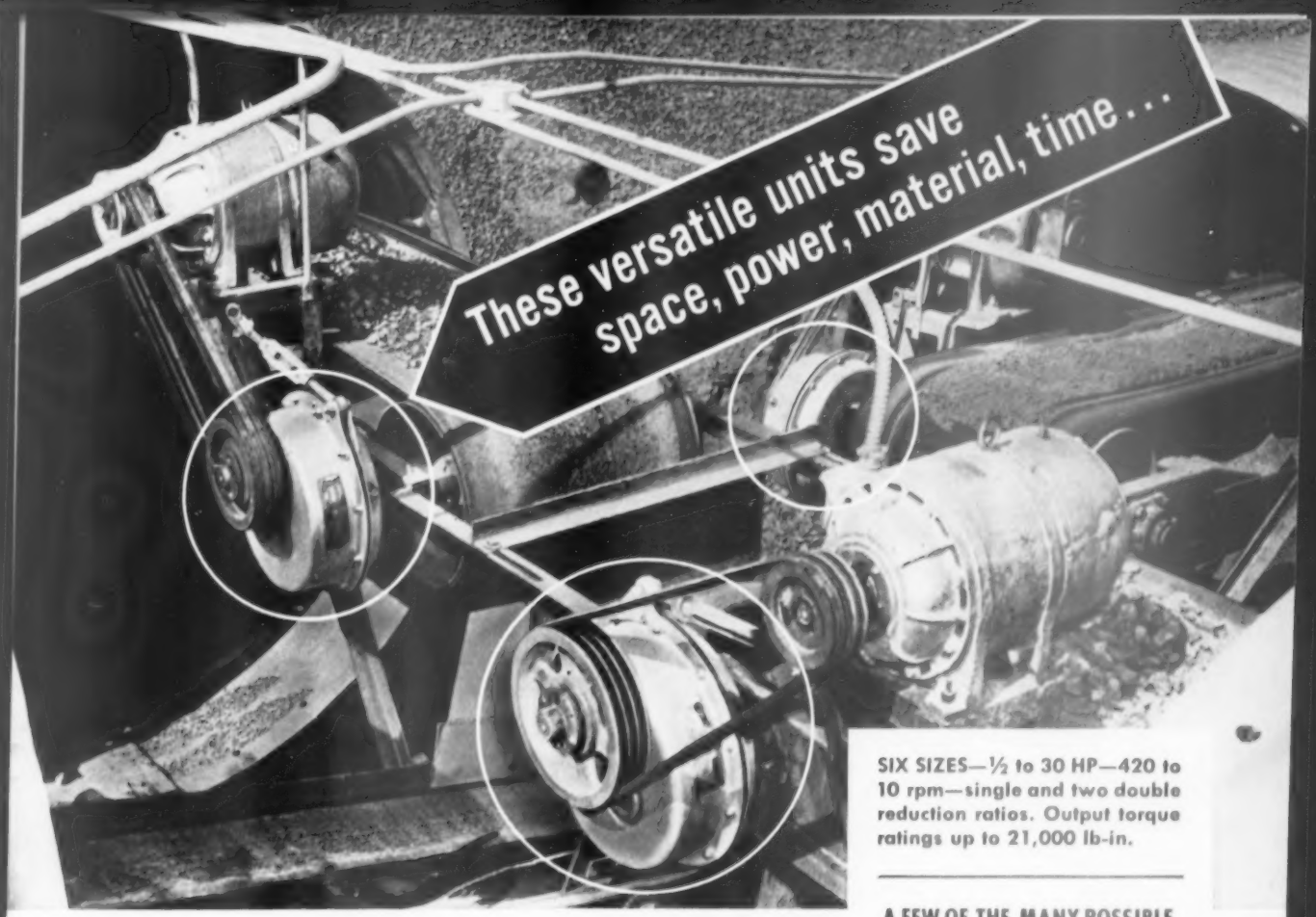

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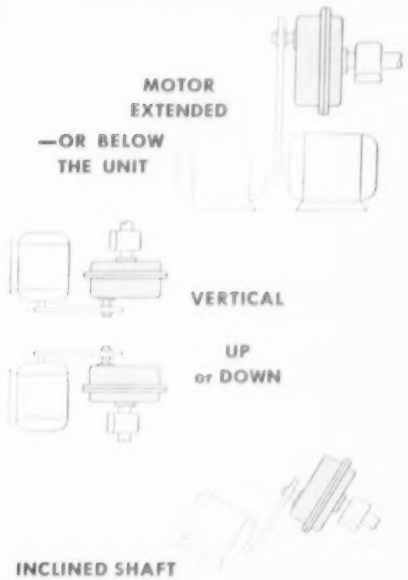

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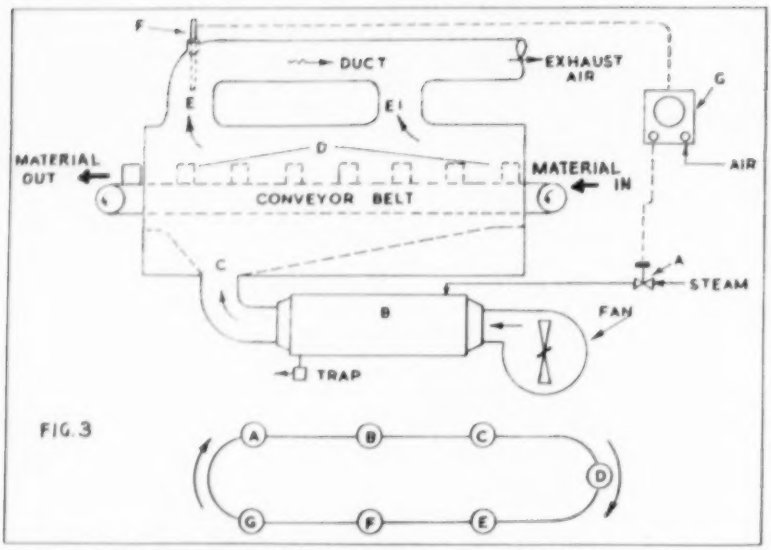

Fig. 3: Total lag cycle (closed loop) of conveyor dryer; (A) Temperature control valve; (B) Steam-heated air heater; (C) Hot air from heater; (D) Material to be dried; (E and E1) Exhaust air; (F) Thermostatic bulb; (G) Controller mechanism reacts on (A)

AUTOMATIC CONTROL

(Continued from page 126)

explain. An elaborate hot-air drying plant produced a product of uneven dryness in spite of the fact that a well-designed temperature and humidity control system was installed. Inspection of the latter proved that it was in perfect operating order, that it was correctly fitted and well maintained. Integral mode of control (proportional plus reset) was being used, for it was known that sensitive, quick-acting, heat control was important in such a continuous high-temperature drying process. Production people were puzzled about complaints regarding uneven quality and dryness of the finished material, until a thorough investigation provided the clue.

A prolonged test with hand control revealed that controllability of the continuous dryer was not good. Independent measurements of air temperatures on inlet and outlet, and of air humidity at the dryer exhaust, did not disclose any great steadiness of drying output. Sometimes the relative humidity of exhaust air increased for some time. This suggested a prolonged measurement, in the laboratory, of the moisture content of the material to be dried before it entered the dryer. Samples were taken frequently, and measurements of their moisture were entered in log sheets.

Measurement of the air volume in various zones of the dryer also disclosed that the flow decreased sometimes at a rate of 25 percent or more. If the reduced air volume corresponded with higher air outlet humidities, moisture content of the dried material became patchy. It became clear from laboratory analysis that the mixture of the various ingredients of the powdered material before drying was somewhat erratic. The humidity of several components varied greatly. Measures were taken to ensure a steady inlet moisture content of the material, and they provided a basically steady process condition. To make sure that the air volume within the dryer remained adequate, two motors driving circulation fans were exchanged. This move cured the trouble of temporary overloads that had caused uneven hot-air circulation.

Readjustments of the humidity controller and of air dampers also were undertaken during the investigation. Last, an improved method of feeding material onto the conveyor ensured a more even height of the feed layer. A continuous feed was provided by cutting out interruptions. Certain reconstructions, such as baffling the air flow of the drying plant and its more continuous operation before fitting the efficient automatic control system, probably would have improved heat transfer.

These conclusions should be of value to engineers. (1) Make sure that the correct controller type is chosen for the job and is correctly installed. (2) Prepare the existing plant for optimum controllability, so that it works at top efficiency with carefully employed hand control. (3) After an automatic control system has been installed, check that results are at least as good as with hand control. (4) Should erratic conditions develop later, do not at once blame the control system or control instruments for the trouble. The cause may be in operation of the plant equipment, in visible and invisible changes in plant operation, or in unsteady conditions caused by outside sources. (4) Do not be satisfied with bad automatic process control. If you are sure that the controllability of your plant is good, demand satisfactory accuracy of control. Never forget that the best control system can produce only results commensurate with the inherent controllability of the process in question.

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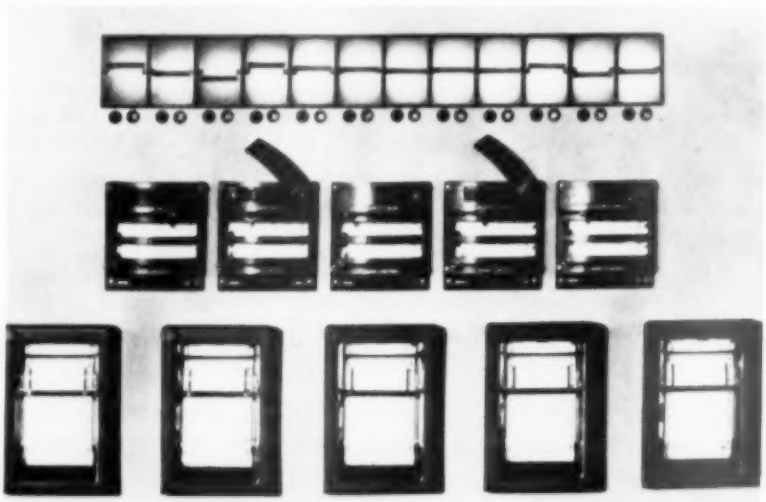
Fig. 4: Mini-Line annunciators shown on top of control panel for visual warning



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Ideal design of a dump truck body and hoist unit offers maximum strength and durability without payload-robbing excess weight. A Heil *engineered* body and hoist offers important features for money-making performance on any earth-moving or rock-hauling operation. Here's why . . .

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HEIL BODIES *LAST LONGER*

Interlaced Cross Members provide firm support under the floor, reduce sagging from the impact of heavy loads. Smooth Heil floor stays flat, dumps clean — load after load.

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Double-Acting Tailgate, hinged top and bottom, is reinforced with sturdy box-section members on all edges, two vertical members for added strength.

Your truck dealer will get expert help from the Heil distributor in working out the correct specifications — overhang, axle loading, capacity — assuring maximum legal payload for your area.

You'll get faster delivery of your new truck because the local Heil distributor can provide immediate mounting service on the equipment you need — right from stock.

What's more, if you should need parts or repairs on your Heil unit, your truck dealer has ready access to the distributor's complete facilities to give you prompt service.

Next time you're ready for a new dump truck, ask your dealer about a Heil body and hoist — a quality feature on the finest truck you can buy. THE HEIL CO., MILWAUKEE 1, WIS.

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DUMP BODIES and HOISTS

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Review of Recent U.S. Patents on Non-Metallic Minerals

By OLIVER S. NORTH*

2,779,682—A patching and crack-filling plaster that can be marketed in tubes similar to toothpaste tubes comprises **gypsum,** a cellulosic acid and water. The product is a householder's specialty. (to S. Langer.)

2,780,090—An insulating wall structure is made by applying over, a suspended metal or plastic screen base, a mixture of sodium silicate, water, aluminum powder and an insulating mineral aggregate. Among the latter are listed exfoliated **vermiculite,** expanded **perlite, asbestos, kaolin, bentonite** and **talc.** The composition foams in place, so that an insulating air space remains between the dried material and the wall. (to P. D. Rasmussen. Assigned to Invention Development Corp.)

2,780,417 — An improved centrifugal apparatus for treating bank **gravel** to produce satisfactory road material or concrete aggregate. Soft or friable components are broken, but the desirable harder material retains its natural, bank-run particle size. The latter is retained on screen while the softer material passes through the screen and is eliminated. (to H. L. Harris.)

2,780,520 — An improved process for recovering sodium carbonate or sodium sesquicarbonate from **trona.** (to R. D. Pike and K. B. Ray.)

2,780,521 — A process for simultaneous production of fluorine chemicals and a commercial silica gel. **Phosphate rock** is treated with sulfuric acid and the resulting hydrofluosilicic acid solution heated with **marble** dust. Filtering produces a calcium fluoride cake containing silica gel. (to C. A. Butt. Assigned to International Minerals & Chemical Corp.)

2,780,522—A method of recovering fluorine compounds from "den gases" evolved during acid treatment of **apatite, phosphate rock** or other **phosphatic** material. (to G. H. Gloss and J. H. Gross. Assigned to International Minerals & Chemical Corp.)

2,780,523—A method of processing **phosphate rock** to recover solid calcium fluoride. (to G. H. Gloss. Assigned to International Minerals & Chemical Corp.)

2,780,524—A method of recovering pure ammonium silicofluoride from "den gases" evolved during acid treatment of **apatite, phosphate rock,** or other phosphatic material. (to G. H. Gloss and J. H. Gross. Assigned to International Minerals & Chemical Corp.)

2,780,536 — The strength of flue-dust sinter is improved by adding thereto 1 to 15 percent, preferably about 8 percent, of granulated **blast-furnace slag.** (to D. J. Carney. Assigned to United States Steel Corp.)

2,781,273—In a method for preparing an artificial block talc having high green strength, a mixture of a suitable **clay,** a powdered natural **talc** and barium carbonate is subjected to high pressure and the product then is fired to a high temperature for two to nine hours. A block material suitable for use in electron tube structures is produced. (to W. J. Koch. Assigned to The U. S. Secretary of Commerce.)

2,781,799—An improved apparatus for bagging lightweight, finely divided materials, particularly expanded **perlite.** (to J. H. Bradford. One-half assigned to Combined Metals Reduction Corp.)

2,781,923—A new lightweight apparatus for atmospheric cooling of sintered materials, such as **hydraulic cement** clinker, burnt **lime** and the like. (to E. G. Puttman. Assigned to Kaiser Steel Corp.)

2,782,018—A method and apparatus for processing mineral materials, especially for burning **lime** and expanding **perlite.** The material is maintained in a fluidized state during both the preheating and heat processing stages. (to J. H. Bradford. One-half assigned to Combined Metals Reduction Corp.)

2,782,113 — In a process for producing fertilizers from **apatite, phosphate rock, langbeinite** and the like, instead of treating with an acid the raw material is mixed with magnesium sulfate or potassium sulfate, rapidly cooled by quenching, and the granular product recovered by filtering the solution. (to G. L. Bridger and D. R. Boylan. Assigned to Iowa State College Research Foundation, Inc.)

2,782,129—In the manufacture of fire retardant asphalt roofing and shingles, a conventional asphalt-saturated felt base is coated on one side with two layers of a coating composition comprising asphalt and between about 5 percent and 20 percent of **asbestos** fiber of a grade equivalent to a group 7 grade. The two coats are separated by an intermediate layer of unexfoliated **vermiculite** granules. In case of fire, the vermiculite particles exfoliate to form with the asphalt- asbestos a rigid, non-inflammable porous mass. (to J. W. Donegan. Assigned to Allied Chemical & Dye Corp.)

2,782,162 — A colloidal material, preferably **bentonite,** is used as a dispersing agent in bituminous emulsion compositions useful as asphalt tile cement or mastic, tank sprays, for undercoating automobiles and the like. (to E. C. Brown, W. H. Driesen, and J. S. Guepet. Assigned to The Patent & Licensing Corp.)

2,782,858—An oil-well cement comprises a suitable **hydraulic cement** and an additive for reducing water loss, such as a water-soluble salt of chitin sulfate or the like. (R. V. Jones. Assigned to Phillips Petroleum Co.)

2,782,923—In an improved method for beneficiating **phosphate rock, sylvinite** and the like by electrostatic means, provision is made for completely and promptly removing a large portion of the separated particles from the field, once they have migrated to a field of the correct charge. (C. C. Cook, Jr. and J. E. Lawver. Assigned to International Minerals & Chemical Corp.)

2,782,926—Device for and method of automatically measuring fineness of **sand.** For example: that used as aggregate in concrete. (W. E. Saxe.)

2,782,927—Design for an improved vibrating screen apparatus useful for sizing ground **talc, gypsum, hydraulic cement** and the like. (Assigned to H. W. Derrick, Jr.)

2,783,139—Process for producing ammoniated superphosphate fertilizers from **phosphate rock** or other phosphatic materials. (R. C. Datin. Assigned to Allied Chemical & Dye Corp.)

2,783,140—A method of preparing high-quality phosphatic fertilizers from high alumina phosphate ores, such as the leached zone material overlying Florida **phosphate rock** deposits. The ore is calcined, crushed, extracted with acid and filtered. The slurry is then ammoniated, granulated and dried. (T. P. Hignett, M. R. Siegel, R. S. Meline and T. M. Kelso. Assigned to Tennessee Valley Authority.)

2,783,157—In a method of making

(Continued on page 136)

*Copies of United States patents are available at a cost of 25 cents each from The Commissioner of Patents, Washington 25, D.C. For convenience, coupons, each good for one copy of any patent, may be purchased from that official at the rate of $5.00 per 20-coupon pad or $25.00 per 100-coupon pad.

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Bonus Quality is the result of extra care in Bucyrus-Erie manufacturing — like the carefully controlled flame-hardening of the lower path for the hook rollers by this automatic machine to insure long life and low maintenance.

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"Our Universal 3240 Impact Master Put a Quarry Back in Business"

says Ed Lundin, New Ulm Redstone Quarry Co., New Ulm, Minnesota

"The New Ulm Redstone Quarry hadn't been worked for 30 years. The material here is Sioux Quartzite — about 98% pure Silicon, one of the most abrasive minerals known. Competition from cheaper aggregates kept the quarry closed until new road building developments in Minnesota made us take another look.

"We knew this material would produce 'Class A' road stone, if we could just get crushing efficiency to meet competition. It breaks into slivers with pressure-type crushers, so we needed an impact-type to give us a cubical product.

"After a thorough study of wear and maintenance costs on impact-type crushers, we bought a Universal 3240 Impact Master. This plant crushes Redstone at *less than half* our expected cost per ton for maintenance — and its production is so high, we're adding another secondary crusher to handle its output.

"Our Universal not only put this quarry *back* in business — it's going to keep it in business!"

There are design differences in impact-type crushers you should know about, for these mean the difference in performance and maintenance costs. We'd like to tell you about the design difference that makes Universal the most frequent choice — tell you why the success of Ed Lundin's operation in Sioux Quartzite is directly related to his use of a Universal Impact Master.

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AGGREGATE PLANTS — Iowa Manufacturing Co., in Bulletin-Unit 6 shows how its portable aggregate plants can be set up in various combinations to produce crushed and screened aggregate to meet practically all requirements of quantity and specification.

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BAG PACKER—Kraft Bag Corp. has a brochure on new Kraftpacker model that accommodates weights from 25 to 200 lb. New features are listed and specifications given. Modification in the standard design may be achieved for handling specific materials.

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BEARING METAL—Joseph T. Ryerson & Son, Inc. has released a bulletin on Babbitt metals made by the Glyco process. Five types are described. Applications for which each is suited are listed, and the reader is told how to pour bearings of Glyco metal for best results.

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BLOCK HANDLING—Signode Steel Strapping Co., advocating the self-palletizing of concrete block with Signode steel strapping, has available literature listing advantages of using the method and illustrating a few Signode packs.

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BLOCK MACHINE — Lith-I-Bar Co. has prepared literature on its two- and three-block, hydraulic- or air-powered Lith-I-Block machines. Form 603 describes four basic models, A-236, H-236, A-310 and H-310.

Enter 504 on Reader Card

BLOCK WALL REINFORCEMENT—Carter-Waters Corp. has prepared literature featuring companion products for masonry wall construction: Blok-Joint, rubber control joint; and Blok-Mesh wire reinforcing. Specifications, applications and ordering data are included.

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CONCRETE COLORS — Frank D. Davis Co. has issued a folder, "Colors for Ready-Mixed Concrete," containing ten colorchips and information on amounts to use per cu. yd. of concrete.

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CONVEYORS—Andrews Machine Co. has prepared two bulletins on its screw conveyor models. One features the portable tubular screw conveyor, available in 600, 900 and 1,000 Series, handling 1610, 3,950, and 4,895 cu. ft. of material per hour. Another features the Andrews P 51 overtrack portable screw conveyor for unloading bulk material from covered hopper cars.

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DRAGLINE BUCKET—Page Engineering Co. announces Catalog A57 illustrating and describing the new lightweight Page "A" series automatic dragline bucket. Performance of the unit is stressed.

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DUST CONTROL — The Johnson-March Corp. has released Bulletin CJQ2001-10M-1056, describing the Chem-Jet systems of dust control in rock crushing plants. Another publication, CM3001-10M-1056, relates the Chem-Jet systems to cement plant operation.

Enter 509 on Reader Card

ENGINEERING SERVICES — John I. Thompson & Co. has made available an 18-page brochure outlining its services to industry in engineering and research.

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ENGINES—Continental Motors Corp. has released Form PB11057, describing features of its 96 engine models in the 14- to 280-hp. range. Gasoline, diesel, fuel oil, LP gas and natural gas engines are available.

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EXCAVATORS—Gar Wood Industries, Inc. has released Form F-191-75A describing Model 75A crane-dragline-clamshell; Form F-192-75B, the 75B crane-dragline-clamshell; and Form F-193-75A, the Model 75A shovel.

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GEAR LUBRICATION — Alemite Division of Stewart-Warner Corp. has prepared "Automatic Gear Spraying," a bulletin describing its Versatal gear spray equipment. Units range from manually controlled applicators to automatic units.

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HEATERS — General Electric Co. has released the 1957 catalog of General Electric heaters and devices—GEC-1005H. Data, specifications and operating information are provided in the 72-page book.

Enter 514 on Reader Card

HIGH STRENGTH ROPE — Jones & Laughlin Steel Corp., announces a comparison table of the breaking strengths of various types of wire rope. Recommendations for applications of their CenterFit rope on various kinds of earthmoving equipment are included.

Enter 515 on Reader Card

HISTORY—Hyster Co. has compiled Form 1341, 17-page illustrated bulletin relating the history of the company since its founding in 1929.

Enter 516 on Reader Card

HMS PLANTS—Southwestern Engineering Co. has brought out Bulletin E56-1R describing Sweco HMS plants. The HMS principle is explained, and dimensions given for Sweco factory-built units.

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LOCOMOTIVES—General Electric Co. has released Bulletin GEA-6332, containing case histories of different types of General Electric industrial locomotives. Operating conditions and performance of 14 switcher-type and mining locomotives are outlined.

Enter 518 on Reader Card

MIXER—Almar Specialty Machines Inc. is the United States distributor for Eirich Mixers, manufactured by Gustav Eirich in Germany. Several pieces of promotional literature are available on the counter current high speed mixers, featuring the counterflow principle. Sizes from 9 cu. ft. and upwards have automatic controls.

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PERLITE MANUAL—Perlite Institute has prepared an 80-page Perlite Design Manual, bound in loose-leaf form. The manual contains specifications, data and detailed drawings for complete roof and floor systems, curtain wall back-up and other building sections, using perlite insulating concrete and/or perlite-gypsum plaster.

Enter 520 on Reader Card

POWER UNITS — Detroit Diesel Engine Division, General Motors Corp., has issued a 19-page catalog outlining its complete line of power units for all types of industrial application. Specifications are given on 31 engine models ranging from 44 to 761 brake hp. including the division's new six-cylinder Turbopower engine.

Enter 521 on Reader Card

SAFETY PANELS—Instrument Division of Stewart-Warner Corp. in Form 18-705 announces "expandable" safety panels that automatically shut off engines should oil pressure drop too low or water temperatures rise too high. The panels are available for both battery and magneto type ignitions as well as diesels.

Enter 522 on Reader Card

SAND REMOVAL — Pioneer Engineering Works, Inc. has released two pieces of literature, Form 661, describing its 44 and 45 series of portable crushing and screening plants; and Form SED 32, containing specifications, as well as diagrams showing arrangements of delivery conveyors.

Enter 523 on Reader Card

SCREW CONVEYOR DRIVE—The American Pulley Co. is making available a catalog covering its new line of shaft-mounted Screw-King speed reducers designed for screw conveyor application. Selection of drives for conveyors can be made by following examples outlined and by using the tables.

Enter 524 on Reader Card

SHAPES OF BLOCK—Columbia Machine has announced a folder, "Faces and Shapes Have Changed," which points out the "special shape" revolution in the concrete masonry field. Instrumental in achieving new designs shown are Columbia molds and the Columbia 12 in. high block machine.

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SLINGS—Colorado Fuel and Iron Corp. offers three new folders describing suggested applications and ordering specifications for wire rope slings made by its Wickwire Spencer Steel Division. The folders describe Wickwire's Uniflex, Multiflex and Maxiflex wire rope slings.

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SPEED REDUCERS—The Falk Corp. has released Bulletin 1105 which combines complete information on the company's line of all-steel concentric shaft and right angle speed reducers for applications up to 140 hp. Dimensions, capacities and applications are tabulated.

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TANDEM TRUCK — Reo Motors, Inc. is distributing Form 5007 featuring its F-506M transit-mix truck. Designed with low-weight chassis, the unit is said to be capable of hauling 6½ cu. yd. within the 32,000-lb. tandem limit.

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TILT-UP MIXERS—L. Burmeister Co. has prepared Bulletin 1-57-5M, cataloging the features of its tilt-up mixer. The bulletin points out the engineering features of the 1 to 7½ cu. yd. capacity mixers and indicates their uses in ready-mixed concrete plants, Porto-Plants or for central-mix plants.

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WALL REINFORCEMENT — A. A. Wire Products Co. describes its solid and cavity masonry wall reinforcements in a new eight-page bulletin. Blok-Lok and Econo-Lok for solid walls, and Cavity-Lok and Econo Cavity-Lok for cavity walls are treated in text and diagrams.

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WATER REPELLENT—Silicones Division, Union Carbide and Carbon Corp. has released a six-page folder, "Spallbar Water Repellent for Modern Highway Protection." Repellents based on silicones are described as effective protection against spalling on the surfaces of concrete highways, bridges and other construction.

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WIRE ROPE—Macwhyte Co. has brought out Brochure 5702, "The Correct Wire Rope for Contractors' Equipment." Included is a discussion of Lang Lay versus Regular Lay rope, rope constructions and the proper wire rope to use for clamshell bucket operation.

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JAEGER "600" ROTARY easily powers dual 4" drill rig in 18' limestone ledge at Nelson Brothers quarry, Lathrop, Kansas. Compressor maintains plenty of reserve power behind the drills at characteristic slow, economical operating speeds.

How Jaeger air cuts drilling cost

Same mobile "600" saves money in quarry and on 450,000-ton excavation for Turnpike

With its Model 6-71 GM diesel engine easing along at fuel-saving speeds that never reach 1650 rpm, this truck-mounted Jaeger "600" rotary compressor powers two 4" drills at top production efficiency in limestone quarry supplying concrete and road aggregates.

Over long hours of steady drilling, the slow-speed, efficient operation of the Jaeger "600" (1650 rpm full load speed instead of 1750-1800) means substantial savings in fuel and engine and compressor wear. These savings were repeated when Nelson Brothers, the owners, shifted their mobile rig to a 450,000-ton rock excavation project for the Kansas Turnpike.

Slow-running, efficient performance, resulting in fuel economy, fewer fpm of engine piston travel and thousands fewer compressor revolutions per hour, is characteristic of all Jaeger rotaries. Smaller units (125, 250 and 365 cfm) deliver full volume at 1700 rpm versus 1800 to 1950 rpm in similar compressors having no more than equal, and often less, air capacity.

It will pay you to make your next compressor a Jaeger. Call or visit your Jaeger distributor for full details and prices, or write us for Catalog JCR-5.

LOGS 400' (IN 12'-18' DEPTHS) PER 8-HOUR SHIFT, IN HARD MISSOURI LIMESTONE: Using only 36 gallons of fuel per 8 hours, Jaeger "600" powers two 4" drifters to this average daily production in Federal Materials Company underground quarry, Cape Girardeau, Mo. Jaeger slow-speed, high efficiency performance saves fuel and wear on every job.

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RECENT U. S. PATENTS

(Continued from page 130)

a stabilized concrete, the initial slurry comprises an **hydraulic cement,** water and sugar. After hydration has begun, the required aggregate and a small percentage of calcium chloride are added. (Assigned to W. A. Grant and C. J. Ainsworth.)

2,783,886—A froth flotation method of beneficiating and concentrating nonsilicate, nonmetallic ores, such as **apatite, fluorapatite, fluorspar, langbeinite, phosphate rock** and **sylvinite.** The conditioned pulp is fed to an Humphreys spiral concentrator. (I. M. Le Baron. Assigned to International Minerals & Chemical Corp.)

2,784,025—In an improved method and apparatus for feeding shaft kilns used for producing **lime** or **hydraulic cement,** the charging buckets are filled with different raw materials, rather than having all buckets filled with a homogenous mixture. These buckets are dumped successively into the top of the shaft furnace. (Assigned to K. Beckenbach.)

2,784,056—A process for treating **natural brines** from the Searles Lake, Calif., deposits with a relatively inexpensive source of carbon dioxide, such as slightly enriched flue gas. Sodium carbonate, sodium bicarbonate, sodium sulfate, potassium chloride and borax can be recovered by this method. (J. V. Wiseman. Assigned to Stauffer Chemical Co.)

2,784,062 — An improved process for making a dry hydrated **lime** by hydrating an active, high-calcium quick lime under controlled conditions of heat and pressure. The putty thus produced is continuously agitated while being subjected to a drying gas. The dry hydrated lime is then tube milled. (R. S. Locke, R. B. Lawson ad H. C. Green. Assigned to Diamond Springs Lime Co.)

2,784,085 — An insulating material is made by bonding with **lime** a mixture of expanded **perlite,** long-fiber **asbestos** and **diatomaceous earth.** The product is useful for both high and low temperature applications. This patent discloses method of manufacture and pertinent use data. (P. S. Denning. Assigned to F. E. Schundler & Co., Inc.)

2,784,105 — Minerals used in the manufacture of brake or clutch lining friction materials include **graphite, kyanite, andalusite** and **sillimanite.** (F. E. Stedman and R. C. Pocock. Assigned to Bendix Aviation Corp.)

2,784,110—Methods for converting naturally occurring, normally hydrophilic **attapulgite** into a form in which it is dispersible as organophilic fibrils. The latter material is particularly useful for thickening oils to make greases, and as fillers for elastomers, including natural, GR-S, neoprene and silicone rubbers. (W. S. Tatlock. Assigned to E. I. du Pont de Nemours & Co., Inc.)

2,784,451—An improved apparatus for producing **mineral wool** from any suitable molten raw material. The mechanism is of the spinning type, and reportedly has high capacity for producing good quality fiber that is relatively free from waste shot. (W. V. Bowen.)

2,784,499—An improved apparatus for preheating a slurry of raw materials prior to its being burned to produce **portland cement** or other **hydraulic cement.** Provision is made for exercising close control of the heating process, so as to avoid excessive drying of the slurry and clogging of the apparatus. (N. E. Andersen. Assigned to F. L. Smidth & Co.)

2,784,831—An apparatus for automatically inverting the uppermost sheet when bundling together a number of **gypsum** plasterboard sheets, to protect the finished surface thereof from damage during shipment. (W. B. Connell. Assigned to The J. B. Ehrsam & Sons Manufacturing Co.)

2,784,841 — An improved method and apparatus for the hydraulic classification of **phosphate rock,** for example those ores found in Florida. Only a rough preliminary screening is required prior to subjecting the ore to free and hindered settling. (R. D. Evans. Assigned to The American Agricultural Chemical Co.)

2,784,956—A simplified means for controlling the combustion process in vertical **lime** kilns so as to prevent the overheating that results in formation of the undesirable "hard-burned" or vitrified, lime. (R. B. Vogel. Assigned to The National Lime & Stone Co.)

2,785,018 — This fluidizing means for unloading granular solid materials from hopper cars is especially useful when the material is **portland cement, sand,** unhydrated **lime** or **soda ash.** (J. C. McKenna. Assigned to Diamond Alkali Co.)

2,785,080—A new ceramic body having improved resistance to thermal shock is formed from a monotropic lithium aluminosilicate having a crystalline structure. This monotropic material can be made by heating **spodumene** or **petalite** or, alternatively, a similar synthetic material can be manufactured by heating a properly proportioned mixture of silica, alumina and lithium carbonate. (F. A. Hummel. Assigned to The Carborundum Co.)

2,785,091—**Graphite** and Kentucky **ball clay** are listed as desirable ingredients in a sodium-metaborate based composition for coating metal surfaces as protection against oxidation and corrosion. (C. A. M. Rex. One-half each assigned to J. F. Govan and R. H. Govan, both of Hoboken, N.J.)

2,785,099—**Mineral wool** batts are used in this sound-absorbing, fire-resisting wall construction method. (E L. Holtsford. Assigned to Badham Insulation Co.)

2,785,510—An improved apparatus for conditioning and resharpening drills used for drilling sound-attenuating holes into acoustic and insulating tiles and blocks, especially those made using expanded **perlite** or exfoliated **vermiculite.** Such drills must produce clean-cut, smooth bores. (C. L. Garrison. Assigned to Oliver Instrument Co.)

2,785,834 — Design for a blender for use in the manufacture of roofing granule-coated materials having variegated patterns. A plurality of different colored roofing granules can be discharged in a predetermined sequence. (P. P. Stanley and V. E. Becker. Assigned to Reichel & Drews, Inc.)

2,785,885—A design for a simple discharging apparatus for moving through a vertical kiln limestone being burned to produce **lime.** Several vibrating pans are located at different elevations in the kiln, and the material progresses from one pan to the next. Movement of material through the kiln is continuous, and the rate of movement can be accurately and conveniently regulated. (E. Mohrs and A. Claus. Assigned to Firma Rheinisch-Westfaelische Kalkwerke Aktiengesellschaft, Dornap, Germany, and Firma Maschinenfabrik Adolf Claus, Wuppertal-Naechstebreck, Germany.)

2,785,886 — An improved method and apparatus for preheating raw mixtures used in the manufacture of **portland cement.** Premature agglomeration of particles is prevented, and adherence of the material to inner surfaces of equipment is reduced. (F. Müller. Assigned to Klöckner-Humboldt-Deutz Aktiengesellschaft.)

2,785,969 — A new unitary seed-carrying package is made by mixing exfoliated **vermiculite,** expanded **shale** or **pumice** with plant foods and an organic, water-soluble binder. This mixture is molded into cakes or blocks having indentations on one face to receive the seed, which are then covered with a thin coating of the same composition as the base. In use, the package is covered with soil and the seeds allowed to germinate; the package dissolves into the soil. (C. D. Clawson. Assigned to Ferro Corp.)

END

Boost Mill Grinding Capacity with RAYMOND *Whizzer Separation*

In closed circuit combination with a pulverizer, the Raymond Whizzer Separator does all the work of classifying, and leaves the mill to do the grinding only. It removes the fines as fast as made, so the mill always works on fresh material without wasting power. The result is greatly increased mill output, 25% to 75% or more, especially on high fineness products.

For classifying cement, both raw mix and clinker, the Double Whizzer Separator does an outstanding job in getting maximum capacity, uniformity and grade quality. With proper setting of the mill, the change from standard to the high early strength cement can be made by external adjustment while the Separator is running.

Flexibility in control, finely engineered construction, special lubrication system, and top-level efficiency in operation, are proven advantages that make the Raymond Whizzer Air Separator so widely used in modern plants for making cement, lime, gypsum and other non-metallics as well as chemicals, foods and many special materials.

Varied Applications

A cement plant is operating a Raymond Separator in connection with 6 tube mills handling finish clinker. Separator receives feed at 74-76% passing 200 mesh, and delivers a uniform product testing 96% to 97% through 200 mesh at a capacity of 174 bbl. per hour.

In a gypsum plant, a Raymond Separator is used in combination with a hammer mill, pulverizing the gypsum to 50% minus 100 mesh. Separator removes fines and discharges them to the kettle at a fineness of 85% passing 100 mesh, and returns tailings to finishing mill with a low fractional percentage of fines.

For handling clay, a Raymond Separator is used with a rod mill. Feed to Separator averages 4 tons an hour of material testing 37% minus 200 mesh. Finished product tests 87% passing 200 mesh while the tailings show less than 1% of 200 mesh material.

In a hydrated lime plant, the former unit consisted of a hydrator and pulverizers alone, producing 6 to 7 tons an hour, and requiring 100 HP for separation purposes. The new unit with two Raymond Separators has a capacity of 15 to 20 tons per hour and consumes only 7 HP to the ton. The total cost of production has been cut as much as 25 to 30%.

Raymond Double Whizzer Mechanical Air Separator

Built in 8 standard sizes from 4 feet to 18 feet in diameter. Also furnished with a single type of Revolving Whizzer.

Write for Raymond BULLETIN No. 76

Raymond 30" Separator

For small capacity industrial applications or experimental work. Furnished with motor and whizzer blades.

Laboratory Air Separator

Small motorized unit for running tests on a few pounds of material at a time.

COMBUSTION ENGINEERING, INC.

Raymond Division

1307 North Branch St.
CHICAGO 22, ILLINOIS

SALES OFFICES IN PRINCIPAL CITIES

Combustion Engineering-Superheater Ltd., Montreal, Canada

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AKINS...FIRST IN EXPERIENCE

used since 1908 for efficient, low-cost classification

TYPICAL CASE HISTORY

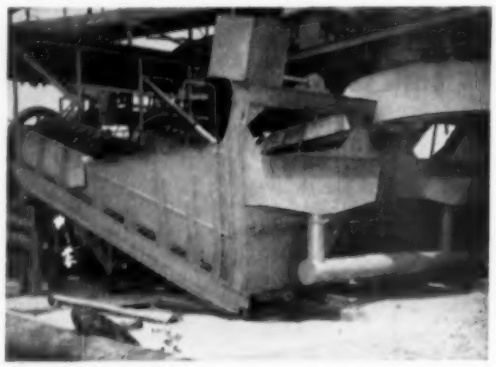
Pioneering in Phosphate

In cooperation with the phosphate mining companies, Colorado Iron Works engineers applied their specialized classification experience in helping to solve the problems associated with developing efficient treatment of phosphate ores. Akins dewatering, deoiling and desliming classifiers were among the first used in this field. Having proved their efficiency Akins Classifiers predominate the phosphate field.

1944

...2 Akins for Swift and Company's Watson Mine, one of first classifier installations on phosphate.

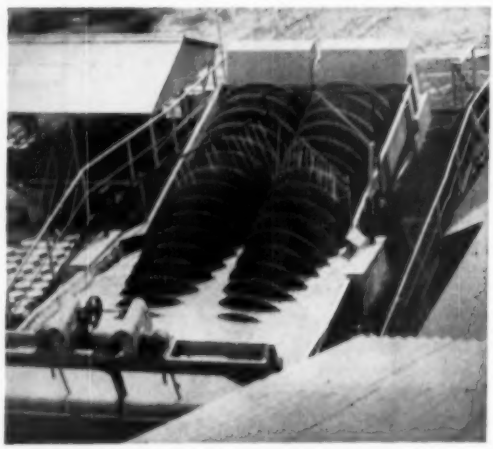
These 2—54" Akins Simplex Classifiers, installed in 1944, and 2 others purchased later, are dewatering and desliming +150, —35 mesh flotation feed.



1956

...8 Akins at Armour Fertilizer Works' New Plant, Bartow, Florida.

This recent installation includes 1—78" Duplex Akins, 1—66" Duplex Akins, 1—60" Duplex Akins, 1—66" Simplex Akins, and 4—60" Simplex Akins. They are being used for dewatering flotation feed, flotation concentrate, belt feed, belt concentrate, and for primary and secondary deoiling.



There are now 28 Akins operating successfully in 8 phosphate plants

AKINS...the Original Spiral Classifier*

*A Registered Trademark of C.I.W.

COLORADO IRON WORKS CO.

A SUBSIDIARY OF THE MINE AND SMELTER SUPPLY CO.

DENVER, COLORADO

SPECIALISTS IN CLASSIFICATION FOR 48 YEARS

Enter 1060 on Reader Card

ROCKY'S NOTES

(Continued from page 16)

International aspect. All this has an international aspect. Since the dawn of history, the "he" men of the back country, the plainsmen and the mountaineers, have periodically swept down on the effeminate city dwellers, destroyed or absorbed them, and started a new era in history. So, according to this theory, since our soils are being exhausted of necessary minerals, our own back countrymen are losing their character and are migrating to the centers of population, becoming effeminate, or "more civilized." Also, the people who stay on the farms and ranches are no longer eating much of the produce of their own land and locality, but are depending more and more, like the rest of us, on prepared city-packed, devitalized foods. Draft examination reports are said to show that as physical specimens our people are deteriorating.

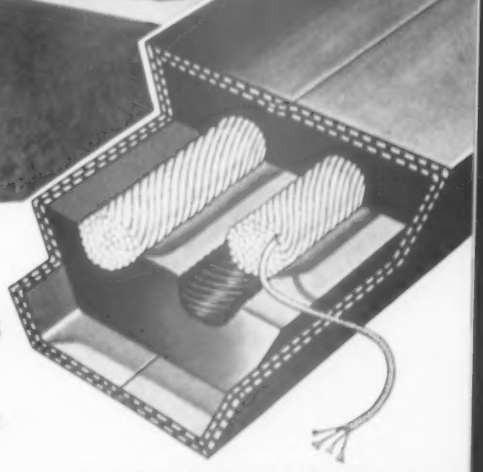
Suppose now that we are engaged in mortal combat with a people or a nation which still has the stamina developed from living on plains, prairies and hills that are rich in limestone, phosphates and the many rarer minerals. Very possibly Russia is such a country, with millions of acres of virgin soils, yet untapped. Then we are faced with opponents who are very likely to prove individually superior to ourselves, at least physically, and in those traits which make for aggressiveness and ambition to conquer. This is not merely a struggle along military, economic and political lines, but a test of humanity as the product of this good or bad earth.

We think all this is relevant to the producer of lime, limestone, phosphate, or other mineral fertilizer, or soil amendment. He need not derive his whole inspiration from the profit motive. He can derive some satisfaction from the knowledge that he is helping those who come after him to maintain their independence in a world conflict. It is not enough for the federal government merely to retire land from cropping, temporarily. That alone will not restore the minerals of which it has been robbed by years of bumper crops. The retired land can thus be put in better condition to retain the minerals that today or some day must be added to it. For if we want healthful, appetizing food products, plant or animal, the soil of all our agricultural land, that has been long cropped, must be "sweetened" by restoring those missing mineral elments. Only in a few mountain val-

(Continued on page 140)

Enter 1061 on Reader Card

NEW...



Thermoid
Powerflex Hi-Capacity V-Belts

40% stronger
than standard belts!

Where more driving power is called for, switch to Powerflex Hi-Capacity V-Belts. These new *premium* belts can step up the drive capacity of "under-belted" drives by as much as 40%.

If your present belts are being stretched beyond their take-up allowance . . . or if you're going to replace worn or damaged pulleys . . . change to Powerflex Hi-Capacity V-Belts. They permit you to use fewer belts and narrower sheaves . . . reduce drive costs.

Powerflex Hi-Capacity V-Belts are available in all standard sizes, and feature a special oil-resistant cover which prolongs belt life. Static conducting covers can be supplied. Order from your Thermoid Distributor, or write direct for complete information.

There's a Thermoid Conveyor Belt

. . . and Thermoid Hose for every job.

Thermoid

THERMOID COMPANY • Trenton, N.J.

30" DURACLONE
Extracts 10 T.p.h. of Clean Fines at 1,000 g.p.m. Input

• *"Certainly does a fine job," says Gen. Supt. Allen Watson of H. G. Fenton Material Co., San Diego, Calif., shown above alongside the equipment he refers to—a 30-in. DURACLONE recently installed in his firm's Otay sand-and-gravel plant.*

• The DURACLONE reprocesses sand-classifier overflows, recovering about 10 tons of clean, fine sand hourly from waste remnants. Volume of slurry handled is approximately 1,000 g.p.m. The DURACLONE was sold and installed by Brown-Bevis-Industrial Equipt. Co., Los Angeles.

• *DURACLONES are specifically engineered for this service in the sand-and-gravel industry. More DURACLONES are being installed by aggregate producers than any other type of wet cyclone—proof of their remarkable ability to wring the last ounce of fine, clean sand from wash-water wastes.*

• Completely rubber-lined, DURACLONES are sold on a guaranteed-performance basis when installed as directed. If your finished sand is deficient in the minus-50-mesh range, a DURACLONE can probably correct the trouble. In addition, the market value of the sand you save will quickly pay for it. Send the coupon below for information, NOW!

H. B. Large Engineering Co.
262 S. Parkwood Ave.
Pasadena, Calif. Phone SYcamore 2-7820

Please send DURACLONE information to:

NAME _____

ADDRESS _____

OUR OVERFLOW WATER IS APPROXIMATELY

_____ G.P.M.

Enter 1115 on Reader Card

ROCKY'S NOTES

(Continued from page 138)

leys, surrounded by walls of various kinds of rocks, containing all the necessary elements, is the renewal of soil fertility automatic. In such valleys the rain brings down solutions and silts that in a plains or prairie country will have to be added by human intelligence with limestone spreader or spray.

END

SERVICE ROCK CO.

(Continued from page 82)

Crushed gravel from the primary jaw crusher passes over a 48 in. x 14 ft. dry, single-deck Symons screen with 3¼-in. openings at the top of the main screening tower. Plus rock can be split and sent to two Allis-Chalmers Ripl-Flo screens, one dry and one wet, with 1¾ and 1⅜-in. openings. Plus material from the top deck is conveyed to the cobble load-out bin. This bin has an extension at the outlet so that the coarse rock will only fall a short distance to reach the truck bed. Intermediate rock from the two Allis-Chalmers screens is also sent to a load-out bin. Minus material falls to two 4 x 12-ft. Symons wet double-deck screens with ⅜-in. top and ¼-in. lower decks. The two sizes are belted to individual load-out bins. Minus ¼-in. from the lower deck flows to a twin Conveyor Co. sand wheel. This has two separate wheels with pockets about 36 in. wide, driven from the same shaft by a variable-speed 15-hp. gear motor. Recovered sand falls to a short belt that serves a radial stacker for the washed concrete sand. Overflow from the wheel flows to the settling basin.

The four main load-out bins each hold from 175 to 225 tons of material. Near the top of each bin is an overflow chute so that when the bin is full the excess can be sent to the stacker belt and ground stored. The operator in the main screening tower controls this operation. General practice is to keep one of the load-out bins available for any size of material that special market conditions warrant.

The operation, when augmented by additional or larger shovels, will have a capacity of 600 tph., and tests have indicated that capacity can be brought up to 1,000 tph. by additional horsepower to the belt to the main screening tower. In the near future, additions will be made to the plant at the primary end so that crusher run material can be produced and stockpiled.

All material is shipped by truck and is weighed on a 60-ft. Webb scale equipped with an American Scale Co. Weigh-graph. Two Hough Payloaders are available for loading trucks. A sprinkler truck, part of the plant's fine housekeeping setup, keeps the roadways around the plant dustless.

Service Rock Co. maintains a fleet of company-owned trucks for hauling aggregates and for hauling bulk cement and ready-mix concrete for its modern ready-mix batching plants in Riverside, Colton, Fontana, Edgemont and Arlanza.

The company is an affiliate of Owl Enterprises, with headquarters in Los Angeles; D. H. Burden is president. The parent company has a sand and gravel plant near Monrovia and is building another in that region. P. M. Hayden is production manager for Service Rock Co. in the Tri-City area. Mat Castellaw is superintendent of transportation and in charge of local ready-mix concrete operations. Phil Larsen is superintendent at Lytle Creek and H. R. Garrett is dispatcher.

END

Awards Terminal Contract

IDEAL CEMENT CO., Denver, Colo., has awarded a contract to the Fegles Construction Co., Minneapolis, Minn., for construction of a terminal at Lake Charles, La. The amount of the contract is approximately $1,035,000, and total cost of the facility is expected to be $1,750,000, according to Cris Dobbins, president. Its completion is scheduled for the fall of 1957.

In its overall expansion program, Ideal will spend $30 million during 1957, with capacity at the year's end expected to rise to about 28,000,000 bbl. Mr. Dobbins has indicated that Ideal aims at a 40,000,000 bbl. capacity by 1966, and that capital outlays in the next ten years may reach $170 million.

Seeks Transportation Savings

VIRGINIA-CAROLINA CHEMICAL CORP., Richmond, Va., has suggested a two-way haul of coal and phosphate rock to effect substantial reduction of freight rates. William H. Wilson, president of Virginia-Carolina, asked officials of two railroads, the Atlantic Coast Line and Seaboard Air Line, to consider the transportation of Kentucky coal south into Florida and phosphate from that state on the return haul north. He cited the advantages of savings in fuel costs to the people of Florida, as well as in freight costs for the phosphate industry.

30 years of LORAIN performance—

now the 6th LORAIN for

BATESVILLE WHITE LIME CO. BATESVILLE ARKANSAS

Batesville White Lime Co. bought their first Lorain shovel just 30 years ago. Recently they bought their 6th Lorain, shown here. This 1½-yd. Lorain-72 rock shovel gives them — and can give you, too — benefits of many modern Lorain features that will keep it going year after year in this tough digging operation. Here are some of them:

Full, "Metered-Air" controls for the easiest, smoothest, fastest operation . . . Torque Converter power take-off to keep full power at the dipper teeth at all times, to eliminate stalling, to adjust torque automatically to digging needs . . . time-saving air dipper trip and many more.

Successful quarries don't repeat on Lorains decade after decade without a record of their profitable operations. It will pay for you to check the Lorain line with your nearby Thew-Lorain Distributor. Let him show you Lorains in operation up to 2½ yards in other quarries in your area. Why not see him soon.

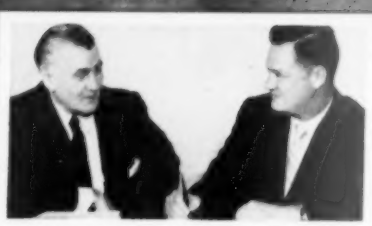
THE THEW SHOVEL CO., Lorain, Ohio

THEW LORAIN

Enter 1136 on Reader Card

Drivers get set to "hit the road" with the first of the 1000 new Power Giants ordered by Ryder System, Inc.

Dodge awarded 1000-truck order



"We picked these Dodge Power Giants to give our truck-lease customers the finest hauling and delivery operation at lowest cost", James Ryder (right), president of Ryder System, Inc., tells Lee F. Desmond, vice president of Dodge.

Ryder System, Inc., world's largest exclusive truck-leasing company, puts low-cost operation first...picks Dodge for record order

When your business is leasing trucks, there's only one way to make it pay off. And that's by keeping your operating costs per mile at rock-bottom levels. That's why Jim Ryder, president of Ryder System, Inc., decided on Dodge when he needed new trucks. He knew that Dodge trucks are built to take extra miles without extra costs.

For instance, new Dodge *Power Giant* V-8's are the most powerful of the low-priced three. And that extra power lets you handle the ruggedest hauling jobs with less engine strain. Less strain means less wear and, of course, fewer repairs. Exclusive Power-Dome design delivers premium performance on regular gas, too. "I save money both ways", says Jim Ryder. "But more important, I know that my customers will be thoroughly satisfied with any Dodge *Power Giant* they lease."

Why not do as Jim Ryder did . . . check into the facts with your Dodge dealer. You'll find a Dodge *Power Giant* will pay off for you, whatever your business.

DODGE

PowerGiants

Most Power of the Low-Priced 3

Enter 1124 on Reader Card

NEW MACHINERY

(Continued from page 70)

Saw Tooth Bit

Hoffman Bros. Drilling Co., has announced a new tungsten carbide insert saw tooth core bit which is said to increase footage speeds. The drill is described as working like a saw but operating on the conventional rig to bring up smooth cores. Field tests have been conducted successfully in coring coarse grained sandstone, shale slate, limestone and other materials.

Enter 112 on Reader Card

Welding Unit

HOBART BROTHERS CO., Hobart Square, Troy, Ohio, has announced the "MIG" semi-automatic welding unit for CO_2 and inert-gas metal-arc welding. Designed for use with Hobart's Powromatic constant-voltage type welder, the unit also will operate with any constant-voltage type d.c. power source. It consists of a welding control and electrode drive unit, and interconnecting gas, water and cable assemblies. Dual control is provided to save the operator time and steps between the actual welding operation and the source of the welding power.

Enter 113 on Reader Card

Steel Hardener

U. S. METALLURGICAL LABORATORIES, Division of General Power Services, 381 Fourth Ave., New York 16, N.Y., introduces Chromelloy, a steel hardening compound. Hardening from the surface inward by a carburizing, nitriding and alloying effect, Chromelloy is recommended by its developers for use in maintenance and machine shops. Small tools or parts are heated in a forge or flame, dipped in Chromelloy powder, reheated for about two minutes and quenched. The entire operation is said to require five minutes.

Enter 114 on Reader Card

Sump Pumps

ATLAS COPCO EASTERN, INC., 151 Linwood Ave., Paterson, N.J., has introduced Models LPC 21 and LPC-41, two new self-priming air-powered sump pumps with capacities ranging from 222 g.p.m. at a 30-ft. head to 20 g.p.m. at a 200-ft. head. Weighing approximately 50 lb. and operating on pressures of 85 p.s.i., the pumps consist of one-piece housings containing vane-type motors and impeller type centrifugal pumps.

The 22½-in. long LPC-21 (illustrated) will lift 37 g.p.m. to a height of 100 ft. The LPC-41, of the same length, will lift 20 g.p.m. to a 200-ft. head. They can be hooked up in series to provide a high head unit with greatly increased capacity.

Enter 115 on Reader Card

(Continued on page 144)

Enter 1095 on Reader Card

GENERAL REFRACTORIES

A COMPLETE REFRACTORIES SERVICE... *for Rock Products*

Whether it's a portland cement plant, a lime plant, a gypsum plant, or a kiln for burning dolomite and magnesite—we can supply all of your refractory requirements.

Here are some Grefco refractories which should prove of particular interest to you:

RITEX MAGNESITE BRICK — a patented, chemically bonded basic brick for lining the burning zone of rotary cement, dolomite and magnesite burning kilns subjected to service too severe for high alumina brick linings. RITEX also has applications in many vertical (shaft) limeburning kilns.

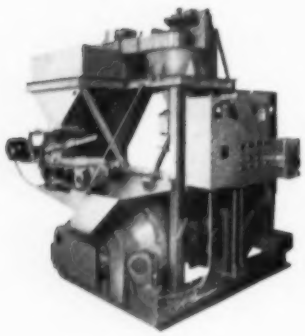
STEELKLAD BRICK — a RITEX basic brick with steel plates already attached. It may provide major savings in your operation.

HIGH ALUMINA BRICK — These come in a full line of shapes and sizes. ARCO-70 (70% Alumina) is most generally recommended, though brick ranging from 50% to 85% Alumina can also be furnished.

As part of our complete refractories service, we have developed cements, mortars, plastics and castables for the service conditions which have proved long-lasting and economical. They meet all the varying requirements of dry or wet application and cold or hot sets. Delivered in cans or bags of various weights.

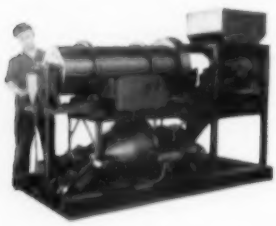
GENERAL REFRACTORIES CO.
Philadelphia 2, Pa.

"Packaged Pulverizers"



DRY GRINDING UNIT

Make power connections only and the Hardinge dry grinding unit is ready to perform. Self-contained and portable, 7'8" high. Complete with Constant-Weight Feeder, Conical Mill, "Gyrotor" Air Classifier, dust collector, product collector and "Electric Ear" grinding control. Ideal for small commercial operations or pilot plant testing layout.



WET GRINDING UNIT

Power and water connections only are needed to put the Hardinge wet grinding unit into operation. Self-contained and portable, 6½' high. Includes Conical Mill, Counter-Current Classifier, launders, feeder, pump and "Electric Ear" grinding control.

Write for Bulletin
AH-448-7 describing
both wet and dry units.

HARDINGE
COMPANY, INCORPORATED
YORK, PENNSYLVANIA · 240 Arch St. · Main Office and Works
New York · Toronto · Chicago · Hibbing · Houston · Salt Lake City · San Francisco

Enter 1074 on Reader Card

NEW MACHINERY

(Continued from page 143)

Welding Positioner

THE SIGHT FEED GENERATOR CO., 38 E. Third St., West Alexandria, Ohio, has announced the Rexarc RP-73-X automatic welding positioner, designed for use with longitudinal tractor rail welding machines. Crawler-type tractor rollers, idlers and other circular or conical objects can be welded without shifting the welding head, control box or welding apparatus. The rotating shaft with variable speed in an adjustment range of 10 to 1 is arranged with bolted coupling, which can be removed for mounting a chuck or face plate. The positioner is furnished with combination flux bin and screen, pair of self-centering cones, and clamp.

Enter 103 on Reader Card

Electrode Holder

MARTIN WELLS, INC., 5886 Compton Ave., Los Angeles 1, Calif., makes the "Tong-Grip" electrode holder which delivers 300 amp. on a heavy-duty cycle when connected to a 00 cable. The holder has glass insulators and spring cup; there is no current in hinge pin or upper tong. The patented wedge cable connector is said to make permanent connection on first installation. The nine-part holder can be assembled or taken apart in seconds.

Enter 104 on Reader Card

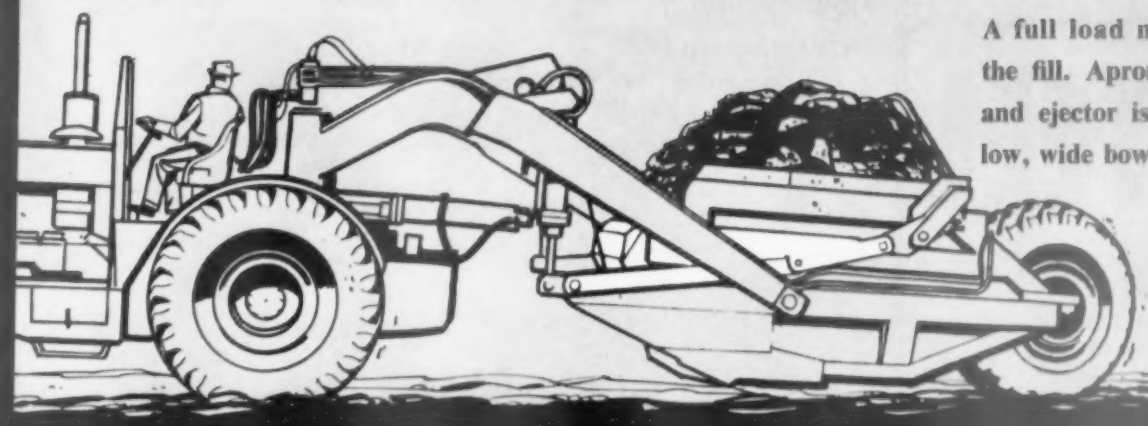
Sectional Telescopic Belt Conveyor Available

WILKIE CO., 5520 Arch St., Philadelphia 39, Penn., produces a telescopic belt conveyor. Supplied in two, three or four sections, each section may be 10, 12, 14 or 16 ft. long. Belt widths are 10, 20 or 30 in. The belt on each section is driven by a separate motor and the conveyor itself is mobile and telescopes by power drive. Loads up to 300 lb. per lineal foot are handled. Differences in level between loading dock and trailer bed are accommodated by the pivotal action between sections. An elevating boom which eliminates lifting travels from the floor to 6 ft. in height, and is optional. It may be located at either end and is controlled by pushbutton.

Enter 105 on Reader Card

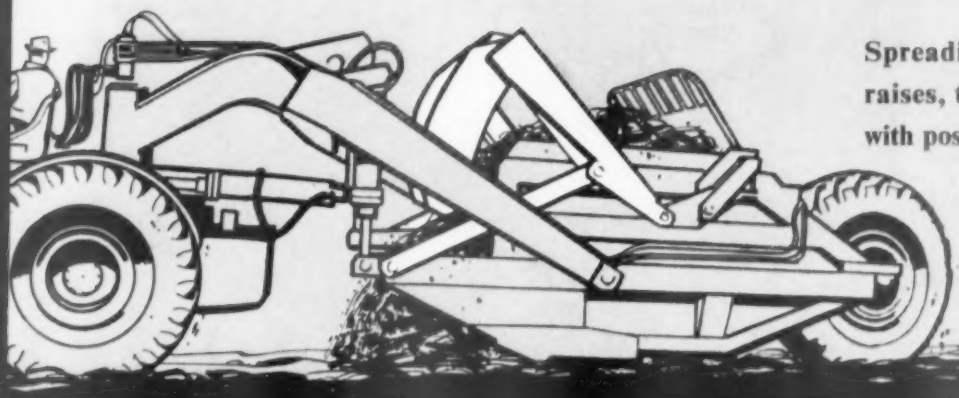
(Continued on page 146)

Enter 1075 on Reader Card



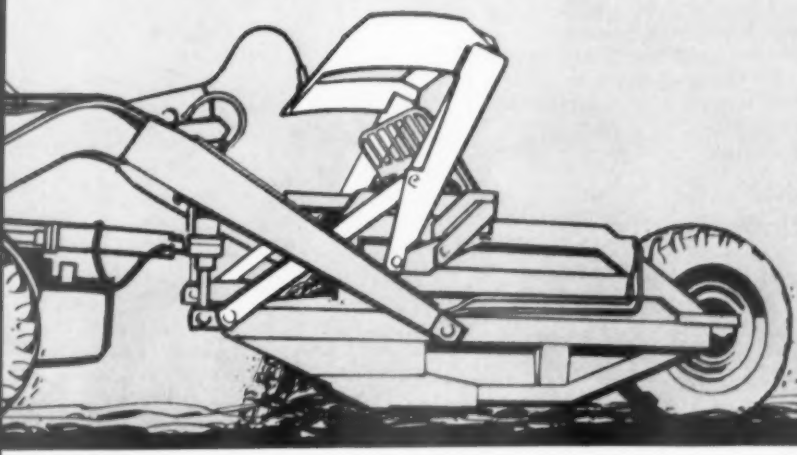
A full load moves on to the fill. Apron is closed, and ejector is at rear of low, wide bowl.

How Allis-Chalmers' patented 3-point scraper linkage



Spreading starts. As the apron raises, the ejector moves forward with positive force, accurate control.

assures fast, clean, controlled spreading of any material



As ejector moves toward cutting edge, linkage simultaneously moves apron forward and upward, providing opening large enough to let any load fall free without jamming. Result: faster cycles, higher production, more profit!

Only your nearby Allis-Chalmers dealer can offer you this important advantage. See it demonstrated now . . . on either motor or pull-type scrapers. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS *Engineering in Action*

STEEL

Every Kind

Quick Delivery

Plates, Structurals, Bars, Sheets, Tubes, etc. Carbon, Alloy, Stainless Steels, Babbitt Metal.

RYERSON

Joseph T. Ryerson & Son, Inc. Plants at New York • Boston • Wallingford, Conn. Philadelphia • Charlotte, N.C. • Cincinnati Cleveland • Detroit • Pittsburgh • Buffalo Chicago • Milwaukee • St. Louis • Los Angeles • San Francisco • Spokane Seattle.

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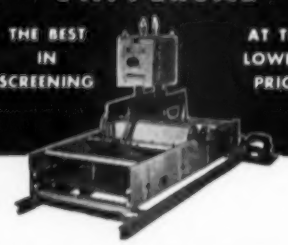
UNIVERSAL

THE BEST IN SCREENING AT THE LOWEST PRICE



THE MOST MODERN AND EFFICIENT ELECTRIC HEATING EQUIPMENT AT A REASONABLE PRICE

- VIBRATING SCREENS- *All sizes and types*
- UNILEC HEATING EQUIPMENT
- UNIFLEX VIBRATORS
- UNIVIBE RIDDLES

WRITE FOR CATALOG NO. 150

UNIVERSAL VIBRATING SCREEN CO.
Racine, Wisconsin
Quality Screens Since 1919

Enter 1077 on Reader Card

NEW MACHINERY

(Continued from page 144)

Mobile Crane

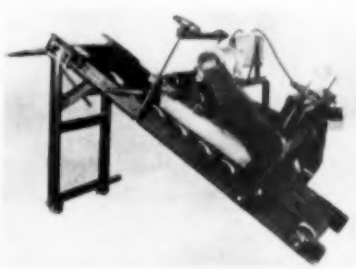
THEW SHOVEL CO., Lorain, Ohio, has added Model MC530W, a 35 ton Moto-Crane, to the Lorain line of power shovels and cranes. The gasoline- or diesel-powered carrier can be supplied with 6 x 6, 6 x 4 or 8 x 4 axle arrangements. Hydraulic, power-assist steering is standard, and power brakes are available.

Lorain "Shear-Ball" mounting is provided for attaching the turntable to the carrier. The MC-530W turntable, either gasoline-powered with hydraulic coupling power take-off or diesel powered with torque converter, is equipped with "E-Z" manual controls as standard, but "2-Lever," "Metered-Air" power controls may be had.

The new Lorain square-tubular-chord crane boom of alloy steel can be used up to 110 ft.; 20-ft. tip extensions are available. It is pin-connected for easy assembly and may be folded to travel. Booms with extra bases are available for extra long boom service (up to 130 ft.—170 ft. with tip).

Enter 106 on Reader Card

Bag Flattener



FLEXOVEYOR MFG. CO., 1220 S. Acoma St., Denver 23, Colo., announces a heavy-duty bag flattener Model No. BI-310. It is 24 in. wide x 6 ft. 8 in. centers, and is powered by a 1½-hp. gearmotor. The unit can be furnished in horizontal position for floor mounting, with castors for portability, or inclined up to 35 deg.

A handwheel adjustment for receiving and discharge ends of the hugger conveyor is provided. The discharge end can be fitted with an adjustable steel apron.

Enter 107 on Reader Card

Barium Carbonate

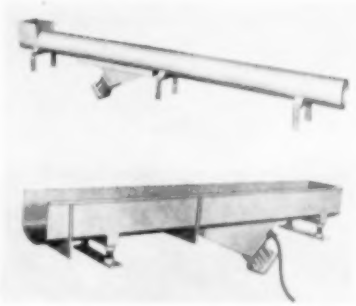
SHERWIN-WILLIAMS CO., Chicago 6, Ill., is producing barium carbonate which is said to have these properties: high density, ability to form stable, insoluble barium sulfate, low fluxing temperature and ease of decomposition to corresponding barium salts by relatively weak mineral or organic acids.

Grade 50F barium carbonate is proposed for prevention of scum and efflorescence in manufacture of brick, tile and ceramics. Added to masonry and architectural cements, barium carbonate also prevents efflorescence and development of porosity with tendency to spall and weather.

Besides Grade 50F, two other grades available are 75C for chemical industry use and 135G, designed for glass manufacturers.

Enter 108 on Reader Card

Vibrating Feeder



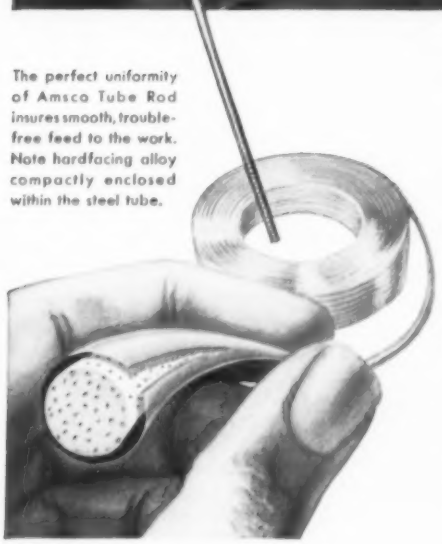
THE CLEVELAND VIBRATOR CO., 2828 Clinton Ave., Cleveland, Ohio, has introduced a vibrating feeder which utilizes a pneumatic drive mechanism. Of enclosed, completely metallic construction, the feeder is designed to handle a variety of bulk materials, both granular and finely powdered. The method of operation is said to permit feeding of some materials at a 20-deg. uphill slant. Frequency of vibration is selected by varying the operating air pressure over a range of 30 to 90 p.s.i., providing control of feed rates. Feeders are available in pan, trough or tubular construction.

Enter 109 on Reader Card

(Continued on page 148)

AMSCO TUBE ◉ RODS

for semi-automatic HARDFACING



The perfect uniformity of Amsco Tube Rod insures smooth, trouble-free feed to the work. Note hardfacing alloy compactly enclosed within the steel tube.

Here are new, improved tube rods . . . *specially designed and engineered* for semi-automatic hardfacing! They have *proved* their speed, quality of weld and uniform deposit in actual use tests. In many cases, deposition rate has been increased up to 200% over other types of semi-automatic electrodes.

Amsco® Tube Rods are perfectly symmetrical, steel-shell wires, with the various alloys firmly enclosed and evenly distributed, for proper weld deposit. The steel shell is work-hardened to provide rods that will not deform or snarl during welding . . . that will run well in any semi-automatic welder. The rods are pre-lubricated, to insure constant and uninterrupted feeding to the work.

For additional information and technical data on Amsco Tube Rods or the Amsco MF Semi-Automatic Welder, see your Amsco Welding Distributor. Or write to Amsco Welding Department SA, Chicago Heights, Ill.

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division • Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DEL., OAKLAND, CAL., ST. LOUIS, JOLIETTE, QUEBEC

Enter 1053 on Reader Card

In plants handling Cement, Lime, Gypsum, Sand, Gravel, Crushed Stone, etc. the WEIGHTOMETER is used for fast accurate production.

WEIGHTOMETER gives a continuous, automatic, and accurate weight record of materials in transit at an extremely low operating cost. All producers of bulk materials handled by belt conveyors need this dependable check on production figures supplied by MERRICK WEIGHTOMETER.

MERRICK SCALE MFG. CO.
180 AUTUMN STREET · PASSAIC, NEW JERSEY

Enter 1078 on Reader Card

NEW MACHINERY

(Continued from page 146)

High-Capacity Front End Loader

MIXERMOBILE MANUFACTURERS, 8027 N. E. Killingsworth St., Portland 20, Ore., announces Model LD20AD Scoopmobile, 6-cu. yd. front end loader. The unit has a breakout lifting capacity of 35,000 lb. and a working capacity of 25,000 lb., the company claims. Features incorporated into the design include four-wheel steering, two axle oscillation, center pin coupling, non-rigid frame, interchangeable axles and lateral bucket spotting. The LD20AD is equipped with torque converter, power-shift full reversing transmission, power steering, four-wheel planetary drive and roll-out high discharge bucket.

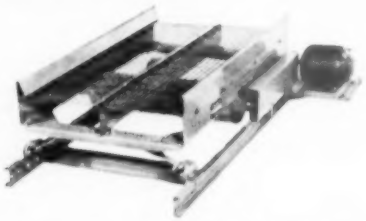
Enter 110 on Reader Card

Air Suspension Trucks

GMC TRUCK AND COACH DIVISION, 660 South Blvd. East, Pontiac, Mich. announces its new line of heavy-duty trucks. Featured are ten air suspension models. These models, in which air-filled, rubberized bellows replace conventional leaf springs, have gross combination weights ranging from 50,000 to 65,000 lb.

Enter 111 on Reader Card

Vibrating Screen



UNIVERSAL VIBRATING SCREEN CO., Racine, Wis., offers Type CS vibrating screen. The 3 x 5-ft. model is made for use in bypassing fine material and for light scalping requirements. It is equipped with a 1-hp. motor, V-belt drive and motor bracket. It operates at 1,800 rpm., using either steel wire cloth or perforated plate. The unit weighs 530 lb., but is said to be rugged in construction and simply designed for both ease of operation and maintenance.

Enter 116 on Reader Card

END

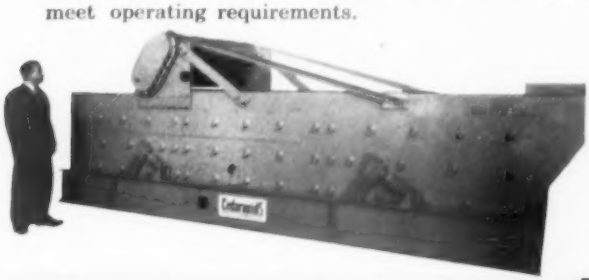
Enter 1079 on Reader Card

BIG-NEW

Cedarapids Built by IOWA

BIG SECONDARY

The Cedarapids 55" x 30" Roll Crusher is the efficient teammate for the big primary crusher, or can be used wherever there's need for high capacities of fine-crushed products. Output ranges up to 850 tons per hour, depending upon the size of the finished product. The large 55" diameter of the rolls easily handles large size feed. Like all Cedarapids roll crushers, Model 5530 can be equipped with two smooth or two corrugated roll shells, or one of each, to meet operating requirements.



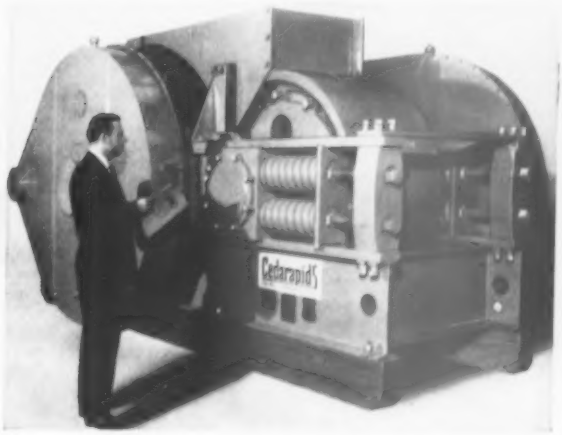
Before you plan your next big crushing and screening operation, be sure to investigate the "big-production-at-low-cost" advantages of Cedarapids equipment. Your Cedarapids distributor will help you plan for higher tonnages and greater profit.

Cedarapids Crushers and Screens to increase your Plant Capacity

The amount of aggregate needed for the National Highway Program will equal, in volume, five hundred Egyptian pyramids, each covering four city blocks and 40 stories high! You'll need big-capacity equipment to produce your share of this mountain of material. That's why Cedarapids has engineered big new crushers and screens to help you increase your plant capacity.

BIG PRIMARY

This newly engineered 42" x 48" Jaw Crusher meets every demand for big primary crushing operations with capacities ranging up to 775 tons per hour, depending upon the size of product desired and the characteristics of the material. The crusher base is stress-relieved to insure maximum strength for weldments, and fabricated with heavy rib-reinforcement to withstand the punishing shock of heavy loads.



BIG SCREEN

Big crushing production demands big screening capacity. The new 60' x 16' triple-deck Horizontal Vibrating Screen is designed to insure accurate gradation of the big-volume output of Cedarapids crushers. The horizontal position of the screen provides as much as 12½% more screening area than an inclined screen of the same length! The screen box and screen cloth support frames are stress-relieved for longer service life and lower maintenance costs.

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa

Enter 1100 on Reader Card

MANUFACTURERS NEWS

J. B. Roberts

William Sivyer

H. F. Bergis

Three Are Appointed As Regional Managers

Chain Belt Co., Milwaukee, Wis., has announced the following appointments: J. B. Roberts, eastern regional manager for district offices in Baltimore, East Orange, New York, Philadelphia, Springfield and Boston, with headquarters in East Orange, N.J.; William Sivyer, midwest and southern regional manager for Atlanta, Birmingham, Buffalo, Charlotte, Cincinnati, Denver, Jacksonville, Kansas City, Minneapolis, St. Louis and Toronto district offices, with headquarters in Milwaukee; and H. F. Bergis, northwestern regional manager, with headquarters in Portland, Ore. New district sales managers are: J. S. Moore, New York; Harold M. Weil, Philadelphia; D. P. Murrill, Atlanta; W. E. Church, Portland, Ore.; F. R. Traylor, Charlotte, N.C.; and C. D. Bergen, East Orange, N.J.

Kraft Bag Corp., New York, N.Y., has made the following announcement: "In Nov. 1954 Everglades Fertilizer Co., of Florida, purchased a Kraftpacker Open Mouth Bag Filling Machine from its sales agents, Kraft Bag Corp. Soon thereafter, Inglett & Corley, Inc., of Georgia, manufacturer of the I & C Bagger, for whom the Union Bag-Camp Paper Corp. acts as sales agent, filed suit against Everglades Fertilizer Co. claiming patent infringement. On Jan. 4, 1957, after two years of litigation, Judge Joseph P. Lieb, of the District Court of the United States for the Southern District of Florida, Miami Division, granted a Motion for Summary Judgment to the defendant, holding that there is no genuine issue as to any material fact and declaring plantiff's patent invalid by virtue of prior public use."

A. P. Green Fire Brick Co., Mexico, Mo., has acquired the Richard C. Remmey Son Co., Philadelphia, Penn., which is now a wholly-owned subsidiary of A. P. Green, and will operate as a separate corporation, with John G. Remmey as vice-president and general manager. Robert H. Remmey, who was president, remains as consultant. G. Bickley Remmey will be in charge of research, development and engineering, and Francis C. Remmey in charge of operations. The name of the firm will remain unchanged.

The T. L. Smith Co., Milwaukee, Wis., has announced the appointment of Otto E. Scott as midwest district sales manager in 13 midwestern states, as well as eastern Tennessee, Colorado, Wyoming, Manitoba and western Ontario. He was formerly a district representative.

Iowa Mfg. Co., Cedar Rapids, Iowa, announces the appointment of Floyd Jones as district sales representative in the southeastern states, with headquarters in Atlanta, Ga. He was formerly with Davey Compressor Co. as district representative in the southeast territory.

John A. Roebling's Sons Corp., Trenton, N.J., has announced the appointment of Osborne W. Traylor as Houston district sales engineer for the construction materials division in Texas, Oklahoma, Mississippi, Louisiana, Arkansas and western Tennessee.

Richardson Scale Co., of Clifton, N.J., and The Bellows Co., Akron, Ohio, have announced formation of a new European company, Richardson-Bellows S. A., Geneva, Switzerland, to manufacture and market Bellows air motors and Richardson materials handling equipment in Europe, the Near East and North Africa. Louis Perrin, a Swiss engineer formerly associated with Hispano-Suiza, is managing director of the new company, assisted by Michel Reve.

Whiteman Mfg. Co., Los Angeles, Calif., manufacturers of concrete truck mixers, Power Buggies and vibrators, has completed a new $500,000 plant in Pacoima, Calif. The new plant covers five acres and a floor area of 52,000 sq. ft.

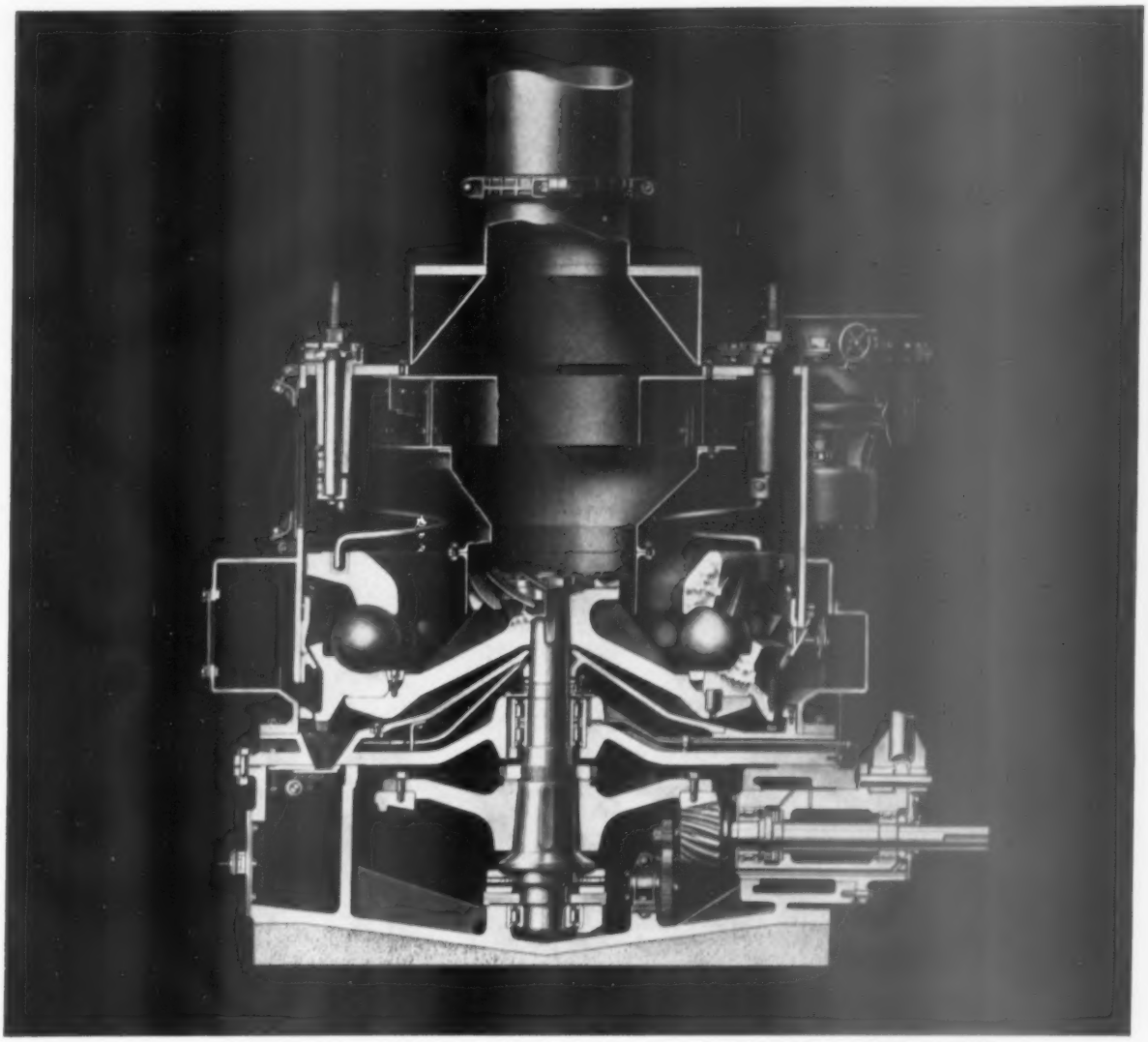
H. K. Porter Co., Inc., New York, N.Y., announces that Fred C. Foy has been elected to the board of directors. Mr. Foy is president of the Koppers Co., Inc.

Bemis Bro. Bag Co., St. Louis, Mo., has announced the retirement of C. W. Loomis, director, vice-president and director of personnel, after 41 years of service. Mr. Loomis will be succeeded by F. V. Deaderick, who has been serving as a director, vice-president and director of eastern operations. Mr. Deaderick's former position has been assumed by R. V. Scott, manager of the Chicago general sales division.

Dewey & Almy Chemical Co., Cambridge, Mass., announces that James L. Vaughan has joined the company as assistant research director in charge of process design and development. He was formerly director of process engineering with the National Research Corp. in Cambridge.

Wheelco Instruments Division, Barber-Colman Co., Rockford, Ill., has announced the following appointments: LeRoy Peterson, branch manager, Springfield, Ill.; Harold Dirkers, branch manager, St. Louis; Howard

(Continued on page 152)



This B&W Type EL Pulverizer has a rated capacity of 18,000 lb of coal per hr.

16 B&W Pulverizers Save Fuel For Marquette

Over a period of years Marquette Cement Mfg. Co. has had successful experience with B&W Pulverizers in direct-firing service. Recently, a Type EL was installed at the Des Moines plant, and a Type EL has been ordered for the Cape Girardeau plant. After the latter is placed in service, Marquette will have 16 B&W Pulverizers.

Type EL Pulverizers have made impressive performance records for direct-firing of rotary kilns. They maintain high fuel economy, even when firing low grade coals. They can be operated continuously for long periods, shutting down only for infrequent inspection. Tough, wear-resistant grinding elements are externally adjusted.

Many Cement Manufacturers are gaining marked operating and maintenance savings—in addition to safety, reliability, and low first cost—with B&W Pulverizers. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

C-215

BABCOCK & WILCOX

BOILER DIVISION

Enter 1008 on Reader Card

FOR YEARS OF HARD LABOR on the rock pile they selected BROOK MOTORS

May Gravel Corp., Fort Wayne, Ind., wanted an electric motor to power a massive rock crusher in their limestone quarry—a motor to withstand heat, cold, dust, moisture and shock loads. They wisely selected a BROOK 200 H.P., 900 R.P.M. motor. Another BROOK powers a 1500 g.p.m. drainage pump in this quarry. Both motors are performing splendidly—and will continue to do so—because they're built for a long service life under severe conditions. Yet, they cost no more (usually less) than ordinary motors. Send for literature.

FAST DELIVERY OF ALL POPULAR MODELS

Brook Motors are available from warehouses at Chicago, Dallas, Jersey City, Los Angeles, Memphis, St. Paul, Salt Lake City, San Francisco, Savannah, Seattle, Tampa and other major distributing points.

SINCE 1904

BROOK MOTOR CORPORATION

BROOK MOTOR CORPORATION

3553 W. PETERSON AVE., CHICAGO 45, ILL.

Enter 1062 on Reader Card

CASE HISTORY #721 | PRODUCT: Defluorinated Phosphate Rock

PROBLEM: To end an air pollution nuisance and recover saleable product being lost at the feed end of a calcining kiln. Collector specifications and performance must be guaranteed operative at 600°F. to prevent gumming and sticking of product caused by condensation.

SOLUTION: A 224 tube Dustex D-400 Dust Collector in a double bank tandem arrangement. Maintenance of 600°F. temperatures were possible because of the Dustex design incorporating an unobstructed inlet plenum and small cyclone tubes positioned in the clean gas exhaust plenum. This design feature maintains tubes at system temperature thus preventing any possibility of condensation.

RESULT: Elimination of pollution problem -- economies resulting from product recovery have written off cost of Dustex unit.

P.O. BOX 2520 — Dustex CORP. — BUFFALO 25, N.Y.

Enter 1063 on Reader Card

MANUFACTURERS NEWS

(Continued from page 150)

Berger, manager of Cleveland office, with Norman H. Fertig on the service staff; Stanley Hanson, manager of Detroit branch with George Hall as sales engineer; Louis D. Gercken on Atlanta sales engineering staff; Hyman Hacker and Shelton Cashbaugh, sales engineers, Los Angeles office, with Robert B. Sanquist as service engineer; Joseph S. McDonnel and John M. Schneider, service engineers, Philadelphia office, with Henry L. Byrne as sales engineer; and William C. England, service engineer, and Kenneth J. Munhall, sales engineer, with Pittsburgh office. Herman J. Schneider, Edward J. Pasch and Roger S. Williams have joined the application engineering group at Rockford.

Dorr-Oliver, Inc., Stamford, Conn., is constructing a new $2½ million world-wide headquarters in Stamford, Conn., comprising 120,000 sq. ft. of office space, for the executive and administrative staff, finance, sales, advertising, personnel relations and patent departments.

Fuller Co., Catasauqua, Penn., has named A. E. Douglass, president, as chairman of the board of directors. Channing O. Davis, vice-president, has been elected to succeed Mr. Douglass as president; G. K. Engelhart was named president of the Sutorbilt Corp. of California, a wholly-owned subsidiary. He will continue as a vice-president of Fuller Co., remaining in Catasauqua.

The Electric Storage Battery Co., Philadelphia, Penn., announces the appointment of J. S. Hudson, assistant secretary, as director of industrial and public relations. He succeeds R. E. Wright, who has resigned after 12 years of service.

The Colorado Fuel & Iron Corp., New York, N.Y., announces that George C. Jennings has been appointed New York district sales manager of the Wickwire Spencer steel division. Formerly assistant district sales manager in the Buffalo district, Mr. Jennings succeeds C. K. Pattison, who will handle special assignments for the corporation.

(Continued on page 156)

Convert Unsuitable Materials into

Specification Sand

BY processing rock, coarse aggregate, and unusable natural sand, the Allis-Chalmers rod mill gives you specification sand *where and when you want it*. It extends the life of natural deposits. It eliminates the expense and inconvenience of distant shipments.

Specification Flexibility

Meeting varying specifications with an Allis-Chalmers rod mill is merely a matter of changing feed, feed-water rate, or rod charge. Once mill is adjusted to produce a required product, it needs very little attention.

Cubical Product

Rod mill action breaks long, flat particles . . . knocks corners off rough pieces, yet does not produce an excessively smooth particle. Size distribution is excellent. Product is ideal for use in concrete.

"Manufacturing" sand is a particularly tough, abrasive operation. That's why you'll want the Allis-Chalmers rod mill. It's a rugged machine that has proven most economical for grinding sand — in terms of long life and low operating costs.

For complete information, see your A-C representative or write Allis-Chalmers, Industrial Equipment Division, Milwaukee 1, Wis. Ask for Bulletin 07B6718A.

ALLIS-CHALMERS

A-5311

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Caterpillar Dealer sales and service along the Interstate Highway System

Write today for free booklet, "The Road Ahead," with full details of the Federal-Aid Highway program.

Caterpillar Tractor Co., Dept. RP-5, Peoria, Illinois

Please send me _____ copies of "The Road Ahead."

Name _____

Address _____

City _____ State _____

CATERPILLAR–ONE GOAL

ONE GOAL . . . To concentrate the capabilities, resources and experience of our people and of the world-wide Caterpillar Dealer organization on the design, manufacture, distribution and service of job-tested heavy equipment. . . .

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

Use REMA to add years of life to your Belts

REMA is the New and Amazing Self-Vulcanizing Rubber Repair Material

REMA REQUIRES

- NO HEAT
- NO HEAVY EQUIPMENT
- NO CURING TIME DELAY

• REMA is not just another cold patch. REMA is vulcanization by chemical process. The repaired area is sealed with an abrasive resistant cover stock patch. No heat or heavy vulcanizing equipment required. Here's the astonishing advantage—*when repair work is completed belts may be returned to service immediately.*

• REMA seals out moisture, reduces mildew, rot and deterioration — the great enemies of conveyor belts. Your own maintenance man can quickly repair your belt — it doesn't take a skilled belt mechanic to use REMA.

• Used for repair of all types of damaged spots, edge wear and for covering metallic joints. Available in introductory kits or parts separately.

Order from your Flexco-Alligator distributor

Write for Folder No. R4

FLEXIBLE STEEL LACING CO.

4684 Lexington St., Chicago 44, Ill.

REMA SELF-VULCANIZING

RUBBER REPAIR MATERIALS

Enter 1064 on Reader Card

MANUFACTURERS NEWS

(Continued from page 152)

Euclid Division, General Motors Corp., Cleveland, Ohio, announces construction of a new 650,000 sq. ft. manufacturing plant in Hudson, Ohio, for the manufacture of crawler tractors for heavy construction and industrial use. The plant is expected to be in operation by July, 1958. Groundbreaking ceremonies were held on March 27.

Western Precipitation Corp., Los Angeles, Calif., has appointed Norman M. McGrane as vice-president. He has been with the firm for more than 30 years, most recently as chief technical engineer.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., announces that Mobile Drilling, Inc., Indianapolis, Ind., has purchased the earth drill business of the Buda division. No other products of the division or of Allis-Chalmers Mfg. Co. are involved in the transaction.

International Harvester Co., Chicago, Ill., announces the appointment of Ralph G. Greer as manager of sales, construction equipment division. He succeeds the late I. P. Payne, who died January 14. Leslie J. Lange, formerly general supervisor of sales development, succeeds Mr. Greer as assistant manager of sales.

Koehring Co., Milwaukee, Wis., announces that George E. Long, past president and retired chairman of the board of directors, passed away on January 21, after a short illness. He was 70 years old. Mr. Long had served as president and general manager from 1940 to 1952. He was chairman of the board until his retirement in January of this year.

The Yale & Towne Mfg. Co., Philadelphia, Penn., announces that construction has started on the new $4,000,000 materials handling equipment manufacturing plant and parts depot in Forrest City, Ark. The new plant will have more than 157,000 sq. ft. of operating area and is expected to be completed this summer.

Galion Allsteel Body Co., Cleveland, Ohio, announces that Howard Marriott has been appointed eastern regional sales manager.

The Master Builders Co., Cleveland, Ohio, division of American-Marietta Co., has elected Stephen W. Benedict as executive vice-president. He joined the company in 1948 as director of research and has been vice-president of research and engineering since 1955. Herbert K. Cook, director of engineering since 1955, has been appointed vice-president for engineering, and Thomas M. Kelly, director of research, has been named vice-president for research.

Johns-Manville Sales Corp., New York, N.Y., announces that Reginald L. Johnson has been elected vice-president and sales promotion manager, succeeding H. M. Shackleford, who has retired after nearly 30 years of service. Mr. Johnson joined the sales promotion department in 1935 and became senior advertising manager in 1944.

Joy Mfg. Co., Pittsburgh, Penn., has announced the death on February 19 of Joseph F. Joy, founder of the company, at his home in Ft. Pierce, Fla. He was 73 years old.

Link-Belt Co., Chicago, Ill., plans construction of a new $5 million bearing plant in Indianapolis to replace the present Dodge plant. Construction will begin this year and is expected to be completed in 1958, with full production in 1959.

Eaton Mfg. Co., Cleveland, Ohio, has announced the retirement of Howard J. McGinn as chairman of the board. John C. Virden has been named to succeed Mr. McGinn as chairman in addition to his duties as president of the firm. Mr. McGinn continues as a director and member of the executive committee.

American Cyanamid Co., New York, N.Y., which is celebrating its 50th anniversary this year, has announced plans for expansion and rebuilding of the 535-acre New Castle, Penn., plant for the manufacture of industrial high explosives. The new plant, which will have a total floor space of 160,000 sq. ft., is under direction of the engineering and construction division and is expected to be in full production late this year.

Basic Inc., Cleveland, Ohio, has appointed Harvey N. Barrett, Jr., as vice-president of industrial sales.

The Babcock & Wilcox Co., New York, N.Y., plans expansion of its research center with erection of a new building containing 15,700 sq. ft. of floor space, and a two-bay addition to an existing building.

END

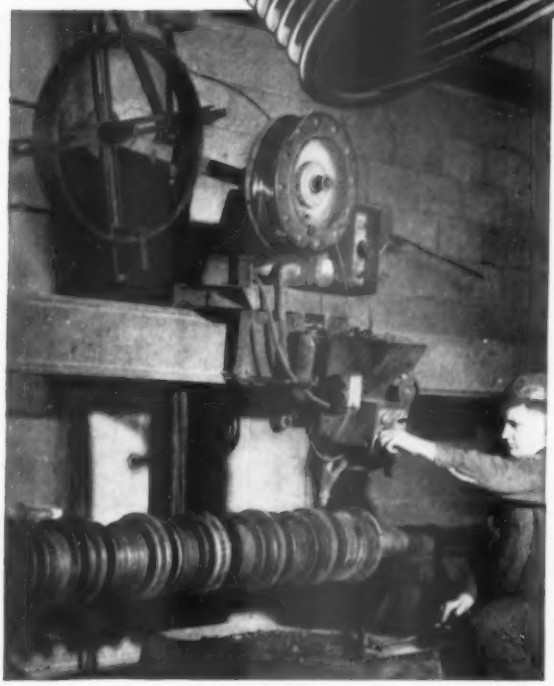
HAYNES Alloys solve the *tough* wear problems

Something NEW in HARD-FACING COILS

Newly developed drawn tube rod in coils as easy to apply as solid wire . . .

HAYNES hard-facing rods in coils give you uniformly hard deposits and smoother feeding—yet cost the same as ordinary tube rod. They also assure steadier deposition rates . . . can be used with standard equipment without nozzle change . . . meet standard wire tolerances for roundness and concentricity . . . and withstand the same feed roll pressures as solid wire.

They are available in six alloys for superior protection against abrasion and impact. For complete information send for descriptive booklet. Write HAYNES STELLITE COMPANY, A Division of Union Carbide Corporation, Kokomo, Indiana.



. . . Especially suited for protection of such parts as tractor rolls and idlers, rock crushing rollers, shafts, sleeves.

See... or *Write...*

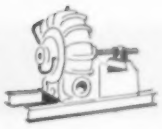
Your local Haynes Stellite Dealer

to Haynes Stellite Company

"Haynes" is a registered trade-mark of Union Carbide and Carbon Corporation

Enter 1101 on Reader Card

Another Customer Speaks



After Nearly THREE YEARS—

After nearly three years' operation and several hundred thousand tons of sand production—STILL NO MAJOR REPAIRS required by this small (6" discharge) Thomas DURABLE Dredge Pump in Virginia.

This is another addition to that long and growing list of satisfied users of Thomas DURABLE DREDGE PUMPS—profited users—who again and again are proving a truth that has become an axiom:

"You cannot buy at any price, a more durable pump for sand and gravel, than a THOMAS—you CANNOT BUY another pump that will make you as much money".

The reason, we repeat, is—

1. **Dependable, GENUINE Thomas Ni-Hard in all wearing parts.**
2. **Good and efficient design to complement the metal.**

Note in the letter reproduced here the facts from another prominent sand and gravel producer.

J. C. JONES SAND COMPANY, Inc.

WHOLESALE DEALERS IN

CONCRETE SAND
BUILDING SAND
FILLING SAND
ENGINE and MOTOR SAND
MACHINE DRIED SAND

ALL GRADES OF SAND

OFFICE
Phone MA 1-1301
AND TIDEWATER DRIVE
Norfolk, Va.

Thomas Foundries, Inc.
P. O. Box 1111
Birmingham, Alabama

Gentlemen:

Our Thomas DURABLE Dredge Pump, Series "FH" (Ni-Hard), was put into operation on May 16, 1954. It replaced a conventional pump that had given us considerable trouble. We asked that you inspect the pump and you did so on September 17, 1956 after more than a year's service.

At that time the pump had produced more than 115,000 tons of sand and it had needed no repairs. We were surprised that it showed so little wear.

On February 8, 1957 your representative again came by and removed the suction side cover to see how much wear had taken place. That inspection indicates that several more months will pass before any wearing parts are needed.

We are frank to admit that when we installed the pump in 1954 we doubted the wearing parts would last one year. Instead they have lasted nearly three times that long and we are certainly well pleased with it. Our only regret is that we did not sooner realize the economies obtainable from the DURABLE Thomas Pump.

Yours very truly,

O A Forbes
Asst. Manager

SAF/b

THOMAS PUMPS
available in sizes
6" through 16".

THOMAS FOUNDRIES, *Inc.*

P.O. BOX 1111 . . . . BIRMINGHAM, ALABAMA

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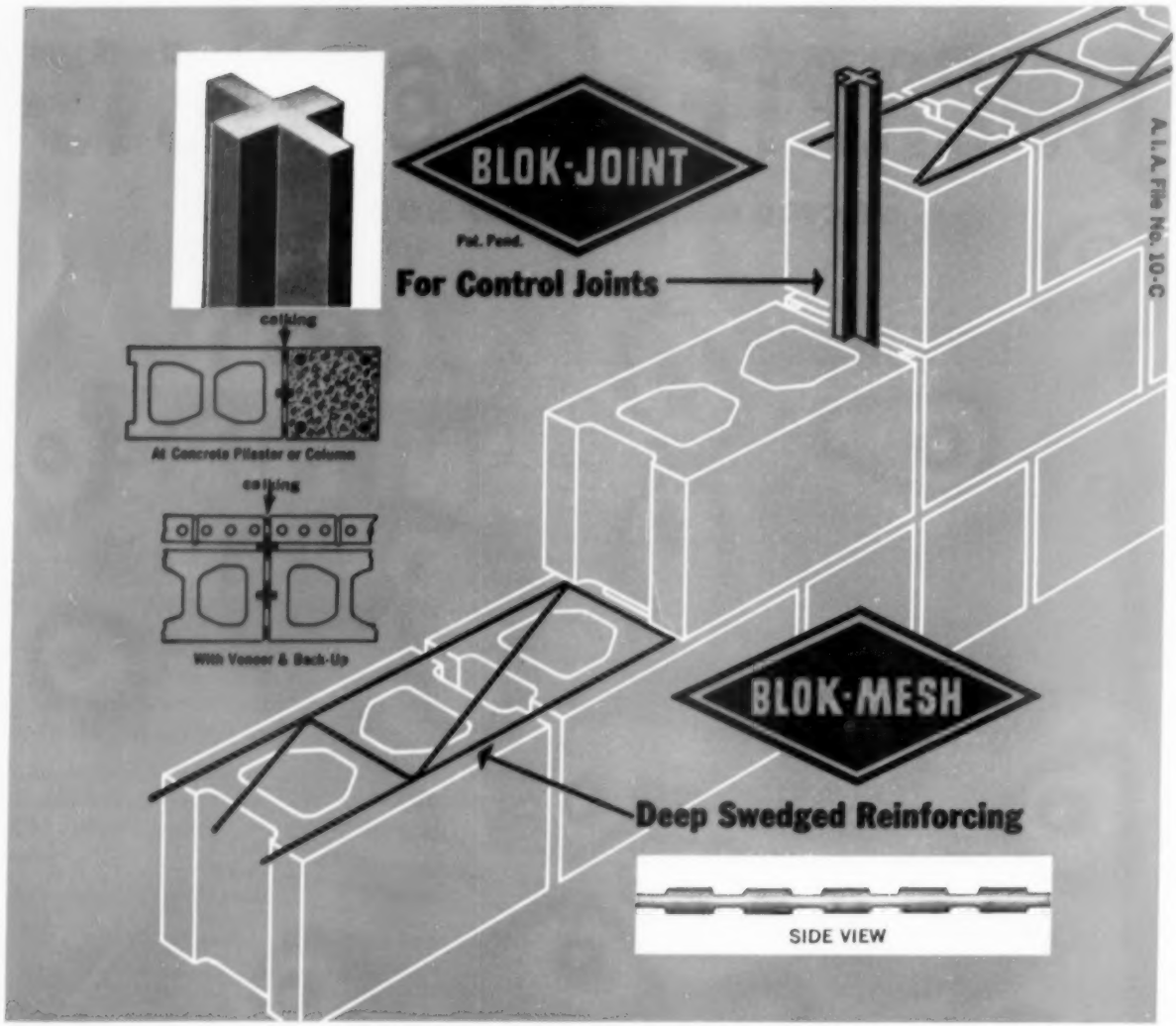
CONCRETE PRODUCTS

A SECTION OF ROCK PRODUCTS

CONCRETE UNITS · READY-MIXED CONCRETE

Retail store featuring prestress concrete beams in a cantilevered overhang



How To Make 2 Extra Profits on

YOUR UNIT MASONRY SALES

The architectural trend to better masonry walls calls for better protection against stresses and strains

BLOK-JOINT for control joints and BLOK-MESH "deep-swedged" reinforcing provide double protection and at the same time gives you a "double barreled" profit shot at your masonry unit customers.

BLOK-JOINT is a simple yet very effective method of making control joints. It is a 100-year rubber extrusion that can be used with ordinary steel sash blocks—no building paper and mortar fill is needed —no cutting or sawing is required.

BLOK-MESH is the reinforcing with the exclusive "deep-grip" swedging that lets the mortar get a real grip on the reinforcing—yet requires no more area in the joint than ordinary superficial deforming.

BLOK-JOINT and BLOK-MESH can bring in quick, extra tie-in profits for your business—so it will pay you to get **complete dealership details now.**

Write for FREE Blok-Joint sample

and literature on Carter-Waters 2-point better masonry wall design.

For Further Information See

2-c Car

Architectural or Industrial Construction File

CARTER-WATERS

2440 Pennway, Dept. CP, Kansas City, Mo.

Enter 1141 on Reader Card

INDUSTRY NEWS

Cover Picture

A STORE, LARGELY BUILT of precast concrete members, is featured on the cover of CONCRETE PRODUCTS. Built at a low cost of $3.75 per sq. ft., there were 20,000 sq. ft. of 14-in. members including a 10 to 16-ft. cantilevered overhang on the front of the store.

One outstanding facet of the design is the use of tapered stems on the T-beams. This conserves material while retaining high structural strength.

Iowans At Annual Convention

THE IOWA READY-MIX CONCRETE Association held its annual convention in Des Moines March 15th. V. P. Ahearn, executive secretary of the national association, spoke on the political climate for business in 1957, and the state highway engineer told the history of concrete in Iowa.

Jet Form for Floors

CECO STEEL PRODUCTS CORP., Chicago, has developed a new type of "air jet" metal form for reinforced concrete floor and ceiling construction. A jet of compressed air frees the Ceco "steeldome" forms after concrete has hardened so that they don't have to be pried loose.

Marietta Opens Panel Plant

NEW PLANT for the manufacture of large-size precast concrete slabs for building construction has been put into operation by the Marietta Concrete Corp., Marietta, Ohio. The new plant building is located near the firm's original panel plant at Westview, Ohio, and is constructed of panels similar to those which it will produce. Large panels, weighing about eight tons, are handled in the plant by a 10-ton overhead crane running the length of the building. Panels now in production will go to Lexington, Ky., to become part of the new I.B.M. building there, to Niagara Falls for the Olin Mathieson and Electromet plants, and for the Air Technical Intelligence Center at Wright-Patterson Air Force Base. The firm is looking ahead to the manufacture of an all-concrete "package" building in which walls, roofs, foundations and other parts will be precast and assembled where desired. "We'll be able to erect a complete 40 x 100-ft. building in one day," predicted F. Leonard Christy, president of the firm.

Plan Prestress Conference

AN INTERNATIONAL CONFERENCE on prestressed concrete will be held in San Francisco July 29 through August 2 by the University of California for some 600 engineers, scientists, architects, contractors and manufacturers from all over the world. The one-week conference is presented by the university in cooperation with the Prestressed Concrete Institute, the International Federation de la Precontrainte, the American Concrete Institute, the American Society of Civil Engineers and other technical societies. The Prestressed Concrete Institute will hold its third annual meeting concurrently with the conference. The program will include papers, panel discussions, field trips and exhibits of equipment. Professor T. Y. Lin of the university's civil engineering department is chairman of the general arrangements committee for the conference.

Installs Central Mix Plant

THE CONCRETE READY MIX CO., Lafayette, Indiana, has installed a Noble central mix plant to augment their transit mix batcher. Transit mixers are used to haul the premix from the plant.

REID CONTRACTING CO. of Woodridge, N.J., is casting 355 prestressed concrete beams to be used in 18 bridges for the Garden State Parkway extension. The beams are produced at the parkway terminus and are cast, cured and ready for erection within 24 hours. They test at 4,000 lbs. psi. at that time.

MEIGS CONCRETE INC. of Pomeroy, O., has received a corporation charter from the state. The new corporation was formed to operate the ready-mixed concrete division of the Pomeroy Cement Block Co. The division had grown so large a separate organization was necessary to handle it, and further expansion may be necessary.

BELOIT CONCRETE CO. of Tiltonsville, W. Va., has built a new ready-mixed concrete plant that brings the firm's capacity up to 200 tons per day. The firm has also constructed a sand and gravel dock on the Ohio River to speed movement of raw materials.

LOUISVILLE BUILDERS SUPPLY CO. of Louisville, Ky., is supplying prestressed channel slabs and girders for the transit company's bus garage. Other transit companies in the country are studying the job for possible use in their own areas.

CAMP-BLOX INC. of Columbus, Ga., is now producing split block in several sizes and colors. The company's ready-mix operation has installed two-way radios in its 12 transit-mix trucks to expedite service.

ARGO BLOCK CO. LTD. of Cooksville, Canada, is installing three autoclaves as part of a five year expansion program. The autoclaves will cure 18,000 block every 24 hours, operating on two 12-hr. cycles.

CARR-LANCASTER BLOCK CO., Morehead, Ky., has incorporated to manufacture concrete block and cinder products. Otto P. Carr and Clayton Lancaster will head the firm.

MEADE SAND & GRAVEL CO., Auburn, Wash., has opened a third plant in nearby Ranton, producing and selling ready-mixed concrete, crushed rock, sand and gravel.

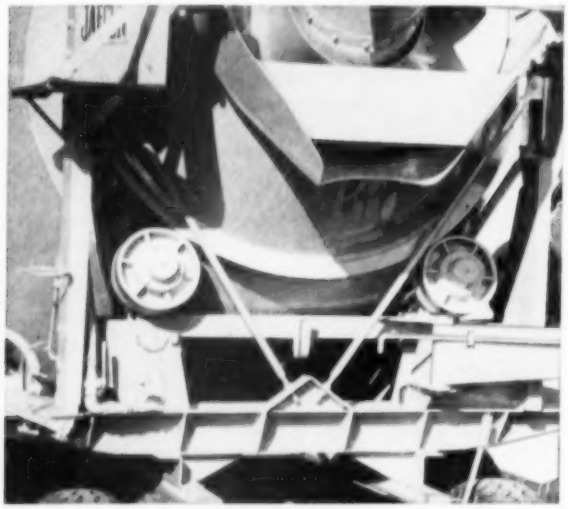
GULF READY MIX INC., Naples, Fla., has just opened for business. The plant sells ready-mixed concrete and allied products.

YAHR READY-MIX, INC., has been formed in West Bend, Wis., with an authorized capital stock of 2,500 shares of no par value.

No other truck mixer really compares with this great JAEGER MODEL "F"

Every so often, a model of machine appears which is so far ahead of every other, so completely *right* in every feature of its construction and performance, that comparisons are no longer possible. The Jaeger Model "F" is such a machine. It offers everything you've wanted in a truck mixer — lighter weight, faster and easier operation, greater flexibility, simplified maintenance and the most efficient source and application of power to the hauling, mixing and placement of maximum profitable payloads.

Talk with your Jaeger distributor. He can help you arrive at the combination of Model "F" mixer and truck that will produce most profitably for your plant.

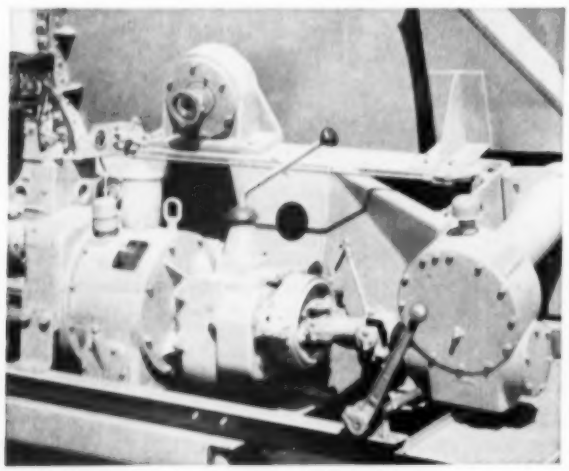


LIGHTER BY HUNDREDS OF POUNDS with stronger, unitized A-frame and clean, open-type rear cradle design. Drum rollers have sealed, grout-proof bearings. All body weight carried within width of truck frame.

THE JAEGER MACHINE COMPANY

603 Dublin Avenue, Columbus 16, Ohio

PUMPS • AIR COMPRESSORS • MIXERS • PAVING MACHINES

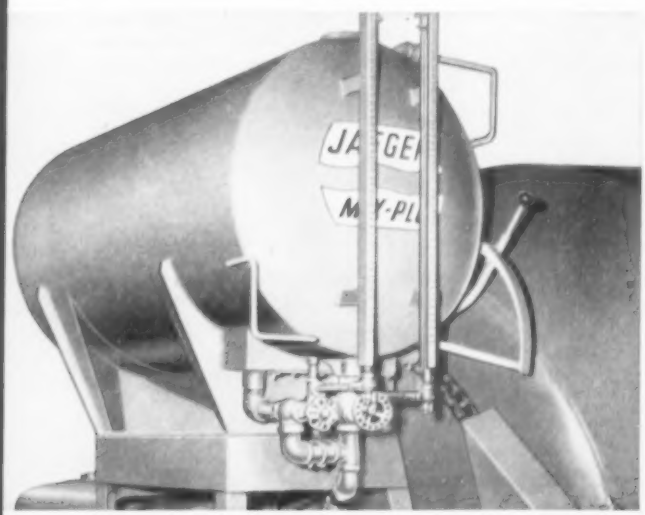


3 SPEEDS for all operating conditions, from 1½ rpm to 16 rpm, with either hydraulic-reversing or automotive type transmission. **THREE CHOICES OF POWER:** Separate engine, front-of-truck engine p.t.o. or transmission p.t.o.

FASTEST TO CHARGE, DISCHARGE: Big-throat hoppers on open-end or sealed-end loaders, 16 rpm "fast-charge" drum speed, big discharge blades. **FASTEST TO MIX** with 12" spiral blades plus throw-back blades.

Hi-Dump "F" models now available in the latest standard truck mixer ratings of 4, 5, 5½, 6, 6½, 7 and 9 cubic yards.

The same features are also offered in Jaeger horizontal-drum models of 6 to 10 cubic yards capacity.



REVOLUTIONARY CONTROLLED-GRAVITY-FEED WATER TANK obsoletes syphon tanks, self-priming pumps and special fittings. New pump delivers 60 gpm. Rear-end injection is standard; front-of-drum entry, with grout-proof jet, optional.

NEW EASY-TO-HANDLE CHUTE is light yet deeper for better handling of all mixes, has flip-over 3′ section, and a fixed pivot point for the chute-head hinge with provision for complete swing-away by the quick lift of a tie-rod hook.

Concrete products and ready mix operators

FOR AUTOMATION PIN-POINTED TO YOUR PRODUCTION NEEDS

- *Call in Butler!*

Full electronic automation operated by punched card for extremely high production is one thing. (BUTLER has it, of course). But automation combined with manual operation may be more efficient at other production levels. The problem in both concrete products manufacture and in ready mix concrete operations is:

"What degree of automation is best for me?"

The answer depends upon many things. Your market and its potential for growth. Your competition. Prevailing wage scales. And many others.

These are the things BUTLER *knows* and knows so thoroughly, the company's engineers hold unquestionable leadership in the field. So whether it's a new plant you are going to build or expansion of the old — it will pay you handsomely — now and in the years to come to call in BUTLER.

BUTLER BIN COMPANY
993 BLACKSTONE AVE.
WAUKESHA, WISCONSIN

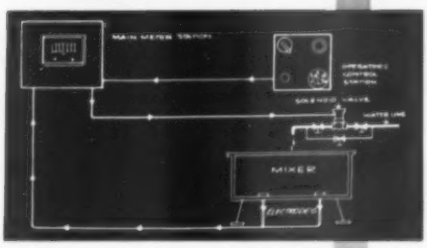
Enter 1102 on Reader Card

NOW... Cut cement and labor costs .....RAMSEY

WATER CONTROL SYSTEM

CONTROLS MOISTURE in CONCRETE MIXES

Equipped with
MINNEAPOLIS HONEYWELL INSTRUMENTS
116 Minneapolis Honeywell
service stations to serve you!



increase your profits

INCREASE PRODUCTION
More blocks produced per hour.
More blocks produced per man.

REDUCE MATERIAL EXPENSE
Eliminate excessive use of cement.

REDUCE OPERATING COSTS
No more trouble from sand which is too wet or too dry.

IMPROVE QUALITY
Better control means more uniform blocks . . . a better all around product.

A OPERATOR'S CONTROL STATION
Consists of an "on-off" switch and light; start button and control adjustor; case is 7" x 6" x 4", dust tight; for mounting near the mixer. Contains *only* mercury switches (no toggles).

B MAIN METER STATION
Electronic controls, completely housed in metal airtight case (no tubes), a large industrial moisture indicator, and valve position lights, the case is 15" x 12" x 6"; dust tight; for wall mounting.

C BATCH MIXING TIMER
Mounted on the main meter station, time is adjustable from 0 - 10 minutes, after elapsed time a signal is given for operator to dump the mix. Manual start, with automatic reset when alarm is shut off. Can be completely automatic if desired. (Optional.)

D BATCH COUNTER
Mounted on main meter station, five digits, keeps a running total of the batches being mixed. (Optional.)

E SOLENOID
New plunger type Solenoid Control Valve is installed in the water line going to the mixer. Insures 85% more accuracy.

F NI-HARD WEAR PLATES
For mounting of electrodes. (These are sized to fit your mixer; specify the make and size of mixer when ordering.) Specially made for resistance to abrasion.

system operation

The system operates on the change of the electrical resistance of the mix as the water is added. The mixer man sets a dial to get the correct moisture. This setting is only done once and need not be changed until a different type of block is scheduled for manufacture. After adding the aggregate and cement the start button is pushed. The solenoid valve in the water line opens and the "valve open" light goes on. The valve is automatically closed and the "valve closed" light goes on after the proper water content has been reached. This system measures the total water content of the mix, not just the water being added through the solenoid valve. Any water in the aggregate being added is automatically compensated for so the final mixtures are always the same.

SYSTEM GUARANTEED FOR ONE YEAR

Write for information

sole distributors

Forrer's
PRODUCTS FOR MASONRY

Distributed By FORRER'S, 2225 N. Humboldt Ave., Milwaukee 12, Wis.

Manufactured by *RAMSEY* ENGINEERING CO.

Enter 1073 on Reader Card

"I wish I'd done it 2 years ago . . .

MOTOROLA 2-WAY RADIO STARTED BOOSTING PROFITS THE DAY IT WAS INSTALLED"

"2 years ago I felt handcuffed, watching my competitors building up their business while we were left at the post . . . listening to customers complain and eventually drift away. I had heard of 2-way radio, but I was "on the fence" about it. Others were using it and actually taking my customers away from me with better service.

"So I decided to take the plunge—and that turned out to be the happiest business day of my life. Motorola 2-way radio cuts costs a dozen ways and gets more work from every truck. Single handed, it has taken our hit-and-miss operation and made it into a smooth-functioning, profit-making unit.

"With better service we're keeping our present customers and winning many of the old ones back. News gets around and we're putting new customers on our books every day. I was pretty late in discovering 2-way radio, but now it runs a close second to trucks as the most important tool in our organization. Before I invested, I learned that Motorola furnishes more 2-way radio than all others combined. The reasons become more obvious after using it for 2 years."

Write, phone or wire TODAY

MOTOROLA

2-WAY RADIO

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC.
A SUBSIDIARY OF MOTOROLA, INC
4501 AUGUSTA BOULEVARD • CHICAGO 51, ILLINOIS

Motorola consistently supplies more mobile and portable radio than all others combined.
Proof of acceptance, experience and quality.
The only COMPLETE radio communications service—specialized engineering...product...customer service...parts...installation...maintenance...finance...lease.
"The best costs you less—specify Motorola."

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...teaming up to multiply manpower (and profits)!

Put one operator behind the fingertip controls of a Gerlinger fork lift truck and you'll have a team that continually chalks up new records for productivity . . . at savings that mount up, too. You multiply manpower with the payroll you have!

Your men will like the lift *they* get, too. Operators praise the ease and safety—the exceptional maneuverability—a Gerlinger gives them through exclusive features like these:

- One-Lever Lift-Tilt Control—positioned for safer operation
- Pivotal-Mounted Steering Assembly—stabilized load on any road
- Counter-active Weight Distribution—better traction, maneuverability
- Unique Floating Type Boom Action—faster, friction-free lift
- Maximum-power Torque Converter Drive—smoother operation with less wear

Send for more detailed information on Gerlinger fork lift trucks. Get latest catalog from Gerlinger Carrier Co., Dallas, Oregon.

Leaders for 38 years in building Fork Lift Trucks and Carriers

TOWMOTOR — THE ONE-MAN-BAND — GERLINGER

Gerlinger Carrier Co., Dallas, Oregon, is a subsidiary of Towmotor Corporation, Cleveland, Ohio

Enter 1106 on Reader Card

CONCRETE BLOCK: Authoritative estimates place 1957 production of concrete block at 2,300 million 8-inch equivalents—an increase of 22% over 1952.
READY-MIX: Production of ready-mix concrete in 1957 will reach an estimated 110 million cubic yards—an increase of 100% over 1952.
demanded!
...by the booming concrete industry
A New...expanded
CONCRETE PRODUCTS
published entirely—and separately—for producers of concrete products.
The foremost publication exclusively serving the concrete products industry—since 1903

A DYNAMIC, NEW SERVICE FOR PRODUCERS OF READY-MIX... BLOCK... PRECAST... PRESTRESSED AND OTHER CONCRETE PRODUCTS

A new, completely separate CONCRETE PRODUCTS *magazine geared to the needs of today's producer of concrete and concrete products.*

A BIGGER STAFF

TO GIVE YOU MORE EDITORIAL COVERAGE ALONG WITH DEPARTMENTS TO ANALYZE AND GUIDE YOU IN:

HANDLING... PROCESSING... STORING...
BUYING... MERCHANDISING... SELLING...
TRANSPORTING... ACCOUNTING...
PUBLIC RELATIONS...

The new CONCRETE PRODUCTS resulted from express demands of producers interested in keeping step with modern operational methods. New, easy-to-read *format*, with large, informative illustrations, edited and presented for fast reading, quick comprehension. *Expanded coverage* from AUTHORITY. Complete market coverage including all phases of operations and management... markets and merchandising... Modern products and techniques... New materials and equipment... Complete information on efficient and profitable ready mix and concrete product operations.

A complete, re-designed CONCRETE PRODUCTS
Geared to today's producer needs

Make sure you receive and read
CONCRETE PRODUCTS
EVERY MONTH

Please Attach Filled-In Coupon to
YOUR BUSINESS LETTERHEAD
(This is required for Circulation Audit purposes).

The principle concrete product (s) manufactured by my company is/are indicated "1", "2", "3", in order of importance below.

Block	Ready mix Concrete
Masonry Units	Pipe
Prestressed Units	Precast Units

Other (What?) _____

Please send me CONCRETE PRODUCTS "Free".
My qualifications as a manufacturer are listed above.
Please send me CONCRETE PRODUCTS for $3.00 per year.
My business is: _____
Remittance attached Bill me

Name _____
Title _____
Firm _____
Street & No. _____
City and State _____
Your signature _____ Title _____

List other people in your organization to receive CONCRETE PRODUCTS at your company address

Name _____ Title _____
Name _____ Title _____
Name _____ Title _____
List other qualified people separately

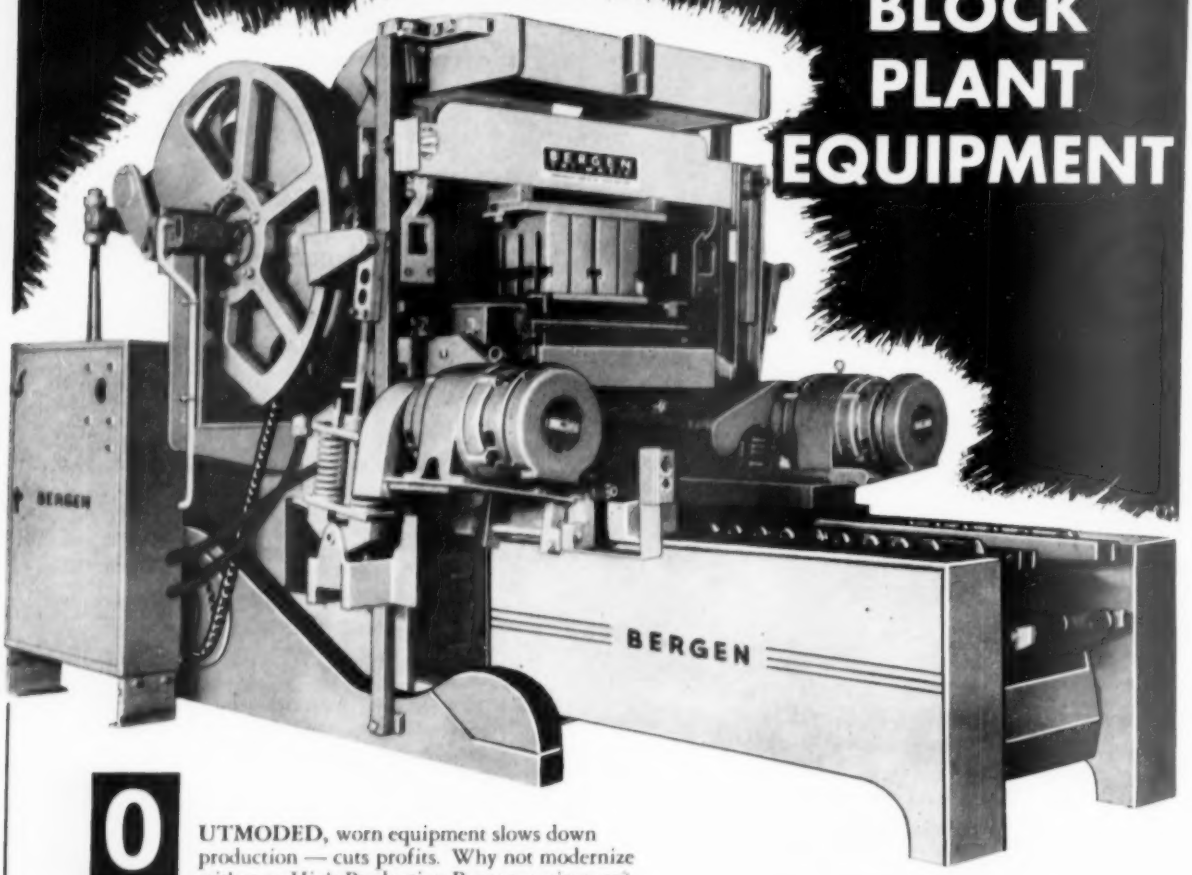
(Free Paid [by company])

FILL-in
COUPON NOW!
for your
PERSONAL COPY
Each Month

Make sure you receive and read
YOUR PERSONAL copy every month

CONCRETE PRODUCTS • 79 WEST MONROE • CHICAGO 3, ILL.

MODERNIZE NOW.... with BERGEN BLOCK PLANT EQUIPMENT



OUTMODED, worn equipment slows down production — cuts profits. Why not modernize with new High-Production Bergen equipment? For example, the new Bergen "Shock-Proof" Front Pallet Feeder, like all Bergen equipment, is designed to give you better block and higher production. You'll surely want to know all about the new design features of the Bergen Front Pallet Feeder as well as Bergen's High-Production Tri-Matic Block Machine.

WRITE
for free literature and prices
or **PHONE "Collect"**
NUTLEY (N.J.) 2-7300

BERGEN MANUFACTURES A COMPLETE LINE OF BLOCK PLANT EQUIPMENT

LIGHT-WEIGHT HOIST
SKIP-HOIST
MASTER CONTROL PANEL
ZEROMATIC HEIGHT & DENSITY CONTROL
MOLD REPAIR TABLE
and a full line of plant maintenance equipment, parts, and repair service.

BERGEN
MACHINE & TOOL CO., INC.
NUTLEY, N. J.
Cable address: "BERGENCO" (Nutley, N. J.)

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CONCRETE UNITS
inside and out

UPPER: Solid slotted blocks fulfill insulation requirements and become part of the finished wall surface.

CENTER: Special U-Shaped Blocks cover exterior spandrel beams.

LOWER: Entire exterior masonry surface is painted concrete units.

■

Concrete units manufactured by: The Cincrete Corporation, Long Island City, New York.

■ There is no limit to new and unusual uses of concrete units in modern construction. An example is the revolutionary design of the Alfred Levitt 40-building apartment project in Queens, N. Y., where concrete units are both decorative and structural elements . . . inside and out.

Imaginative uses of concrete units like this pay off in easier, more profitable sales for concrete products manufacturers. Look around your own vicinity. Chances are there's a new use for your products, waiting to be fitted into your profit picture.

And remember, for the most profitable production include Lehigh Cements in your plans. There is a Lehigh Cement to help you produce quality units with any manufacturing process.

- LEHIGH EARLY STRENGTH CEMENT
- LEHIGH PORTLAND CEMENT
- LEHIGH MORTAR CEMENT
- LEHIGH AIR-ENTRAINING CEMENT

LEHIGH PORTLAND CEMENT COMPANY
Allentown, Pa.

Enter 1140 on Reader Card

De Pasquale Bros.' Mack B-42 tractors haul the massive concrete products in trailers from plant to job site, travelling on- and off-highway. Their 10-yard dumpers deliver gravel, while mixers are used to pick up special concrete batches for delivery to the plant.

because concrete products make rugged hauling...

De Pasquale Bros. relies on Macks

Mack B-42's handle the entire hauling needs of one of the East's largest independent suppliers of concrete pipe and concrete specialties. President Eugene De Pasquale, Sr., of De Pasquale Bros., New Hyde Park, N. Y., is convinced that it would take many more trucks of any other make to keep up with his operation.

"I've seen our Macks work against even larger trucks on the same kind of job," he says. "Macks turn in the best day's work every time.

"And that's only part of it. We've had our Macks over a year and a half, and every last one of them has been on the go all day long, every working day. Yet there hasn't been a breakdown or major repair job on any of them. And it's not only the front office that likes Macks; you ought to hear our drivers on the subject. I'm afraid they're spoiled for anything less than a Mack."

Best of the many Mack features valuable to operation, Mr. De Pasquale believes, are the durable, precision-built transmissions. "They're engineered *right*," he says. "And so is the whole truck, for that matter. Macks have been a big boost to our company in every single way."

Check De Pasquale Bros. . . . check *any* Mack owner. You'll find that Macks, the finest trucks made, mean greater dependability, longer earning life, unmatched upkeep and fuel economies . . . *more work per dollar.*

Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK
first name for
TRUCKS

4910

MAKE THE SIZES OF BLOCKS YOU WANT

ON A KENT BLOCK MACHINE

faster-more efficiently

Over 30 years of experience as specialists in the designing and building of concrete block machinery are reflected in these Kent Block Machines.

They are clean, simple, compact machines that are remarkable in their comparatively low first cost, the high quality of blocks produced, their adaptability to various needs, their economy of production and maintenance.

You know block machines and their various features so write for the KENT story and make comparisons before you buy new equipment. Write for complete information.

KENTHREE ------ 3 per cycle

3 — 8" Blocks Per Cycle —
max. 5/16" x 18-1/2" x 26" Pallet

KENTWIN ------- 2 per cycle

2 — 8" Blocks Per Cycle —
max. 5/16" x 18-1/2" x 18-1/2" Pallet

• • •

2 — 10" Blocks Per Cycle —
max. 5/16" x 18-1/2" x 22" Pallet

Front Pallet Return Recommended. Available On All Plain Pallet Machines.

KENT SUPER BLOCKMAKER 1 per cycle

Cored Pallet — semi-automatic.

See KENT MACHINERY IN OPERATION

RIGHT IN YOUR OWN OFFICE

Just ask to have our Representative Bring the Movie Projector

Send Information Regarding KENT MACHINE CHECKED

☐ THE KENTHREE ☐ THE KENTWIN
☐ THE KENT SUPER BLOCKMAKER

Name_____

Address_____

City_____ State_____

The KENT MACHINE CO.

DIVISION OF THE LAMSON & SESSIONS CO.

CUYAHOGA FALLS, OHIO

Manufacturers of

CONCRETE PRODUCTS MACHINERY SINCE 1925

THE WETTLAUFER EQUIPMENT, LTD. 49 MERTON STREET • TORONTO, ONTARIO, CANADA

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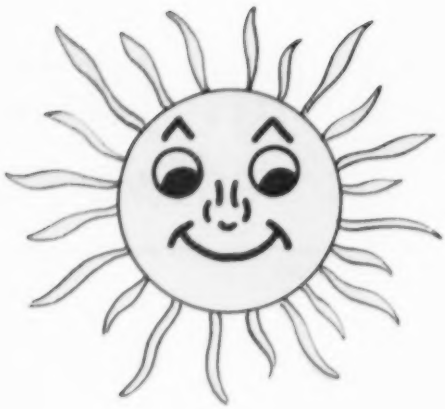


SOMETHING NEW under the SUN

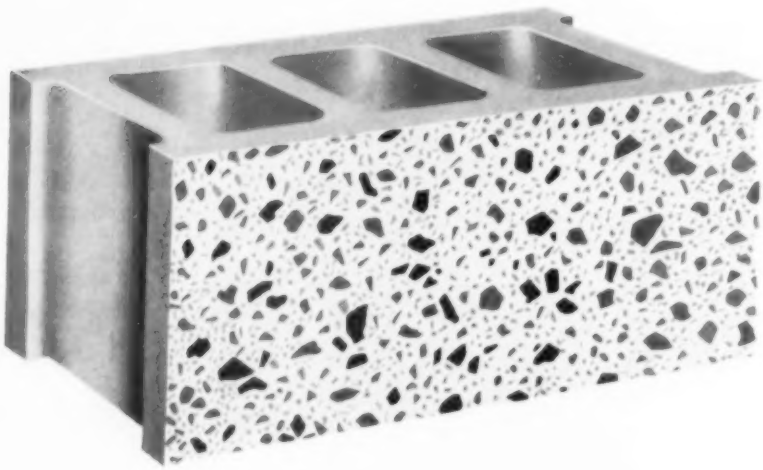
LIKE THE RAINBOW

ANY COLOR OR COMBINATION OF COLORS

INCREASE YOUR PROFITS BY SUPPLYING CHEMICAL, SOLVENT, FIRE & WATER RESISTANT FACED BLOCK

Here is what you have been looking for to add that extra profit to your operation. If you are presently producing a high quality block you will want to see how the SANILITE, ARISTOCRAT, and MARVOLITE process can help you. Here is a permanent terrazo surface bonded with a specially patented plastic to the aggregate in the concrete building unit. The face is chemical, solvent, fire and water resistant. The finished product can be shipped the same day manufactured. NOTE: All three—SANILITE, ARISTOCRAT, and MARVOLITE are dimensionally stable—No warping or slumping.

Your costs are the minimum possible and your profits are immediate.



We will train your personnel so that they can expertly and efficiently produce SANILITE, ARISTOCRAT, and MARVOLITE masonry. You will have an exclusive territory and we are prepared to offer advertising assistance.

You may produce a face of any color or combination of colors. If you would like to see some of the really attractive effects that can be produced write, for our samples and complete information.

BLOCK PRODUCERS *WRITE TO:*

VOLZ CONCRETE MATERIALS COMPANY

8801 PAGE AVE. Department 1 ST. LOUIS 14, MO.

Enter 1054 on Reader Card

One of Florida's spectacular attractions: the Citrus Tower at Clermont. Approximately 10,500 sq. ft. of 68-ft. prestressed slab construction went into the tower

Prestressed Concrete

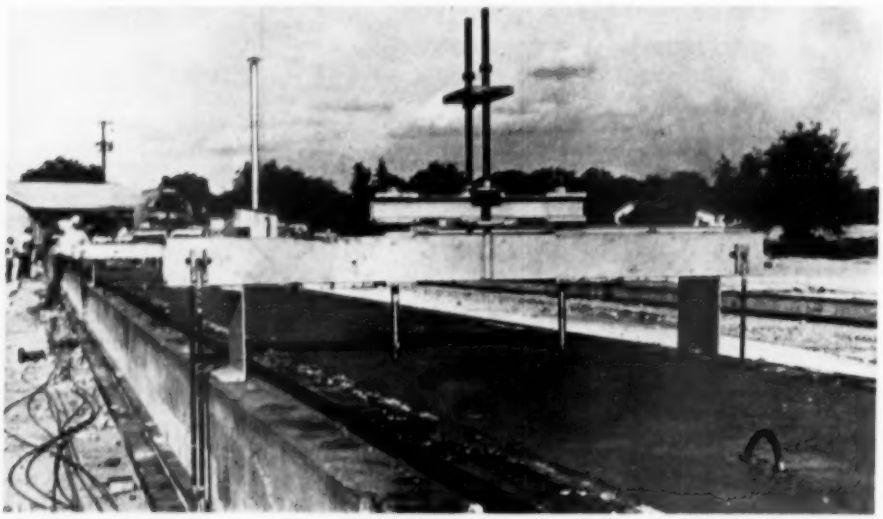
A report to our readers on how a progressive prestressed concrete plant operates

By C. E. WRIGHT

AS YOU WOULD EXPECT, J. Ashton Gray, president of the Prestressed Concrete Institute, sets a good example for the industry with his progressive operations in Florida. His main plant at Leesburg, Florida, operated as Dura-Stress, Inc., and a subsidiary plant at Daytona Beach, 70 miles away, called Perma-Stress, Inc., have back of them many years of leadership in prestress and precast production and merchandising.

For better service to the customers, each of the yards employs a structural engineer to design members. Richard Newman is the engineer at Leesburg, and Len Howard at Daytona Beach. Besides design work, these men supervise tests of finished products in the yards. By giving professional help on design to architects and contractors, Dura-Stress and Perma-Stress have been able

This lift truck, with special attachments, handles a 58 ft. double-T beam with the ease of picking up a toothpick



This fixture permits the wire strands to be accurately located in place of maximum stress in the legs of the beams

Prestressed concrete

Continued . . .

to furnish prestressed members for a greater variety of jobs.

The Dura-Stress plant at Leesburg covers a site of 12 acres. The company owns an additional 40 acres, 35 of which can be quickly developed for future expansion.

With a wide range of prestressing beds, Dura-Stress is equipped to handle all types of work. Its largest bed, for bridge and girder construction, is 650 ft. long. There are also two 300-ft. beds for this type of work, two 430-ft. double-T beds, two 320-ft. joist beds and four lintel beds each 180 ft. long.

All pouring is done from ready-mix trucks which shuttle concrete from two batching plants on the plant site. These are both owned and operated by a Dura-Stress subsidiary, Duracrete, Inc., which also delivers to contractors in the area. The plant which mainly supplies the prestressing yard was completed and placed in operation in December and includes a feature that is believed to be a "first," at least in the South. The 240-ft. in-

A fine example of the use of prestressed concrete beams

cline belt to the weighing and mixing platform is supported by prestressed A-frames and 14-in. prestressed deck channels. The erection of two 58-ft. spans created something of a problem even for a 25-ton American crane with a 120-ft. boom.

This new batching plant, with capacity of 200 tons per hour is situated on a railroad siding. It has the conventional underground screw mechanism for drop-bottom unloading and conveying of cement by bucket elevator to the top of the silos, which hold 720 bbl. of cement. An inside bin holds 200 bbl. C. S. Johnson batchers are used in both plants with semi-automatic weighing and mixing instrumentation.

The growth of the business and the demand for concrete products in Florida is illustrated by the fact that the old batching plant started with a daily capacity of 100 cu. yds. and by various stages has been stepped up to 250 cu. yds. When Duracrete couldn't get any more out of it, they built a second plant so that both outside ready-mix customers and the prestressing yard would get service as needed. The old plant will be utilized largely from here on for State Road Department and specification work.

The new plant has been equipped with complete control of the water factor by means of a device widely used in the South for moisture tests, supplied by the Sarasota Engineering Co., Sarasota, Fla. This is in line with the policy of both Dura-Stress and Duracrete to "sell quality along with service." The testing equipment will also be added to the old batching plant.

Capacity of the prestressing yard is 3,200 sq. ft. of double-T beams, 600 lin. ft. of joists and 920 ft. of piling per day. Beams have been made up to 73 ft. in length.

Economy of operation in the Leesburg yard has been achieved partly by assembly of raw materials from nearby points. Stone is obtained from the Brooksville, Fla., area, only 46 miles away; sand from Tavares, Fla., just 10 miles; and cement from Florida and Alabama producers. The problem of handling has been resolved by Dura-Stress in favor of what it believes to be one of the most economical methods; stripping, stacking and loading are done by a 10-ton and 12-ton Hysters. The only crane used is a 25-ton American for erection. Flexibility and ease of operation are claimed for the Hysters.

For curing, Dura-Stress uses hot water at 230 deg. F., which is circulated around the stems of the double-Ts and joists, assisted by a pump on each bed, and recirculated to a boiler, which has sufficient capacity to supply all beds at once. In Florida's summer sun the metal forms often become too hot to handle. To cool them, water from an artificial lake adjoining the plant site is pumped around the forms.

At Daytona Beach the Dura-Stess subsidiary, Perma-Stress, Inc., operates a smaller yard, equipped with one double-T bed 400 ft. long and two lintel beds each 280 ft. long. These are served by ready-mix trucks from Permacrete, Inc.'s own batching plant. Jobs that are beyond the capacity

Please turn to page 206

This building supply warehouse, one of two owned by Denie's Sons, has 45,000 sq. ft. of floor space. Notice that the roof is made of prestressed concrete channel slabs

At this concrete products company—

pioneering, prosperity

IN ALMOST 100 YEARS of pioneering, progress and prosperity, John A. Denie's Sons Company of Memphis, Tenn., has never stopped to rest on its laurels. The company has long been a leader in manufacturing and selling building materials, and its current setup keeps up the tradition. For the past 37 years the Denie firm has provided concrete, concrete materials and brick to the rapidly growing building industry in western Tennessee. The company started 1957 with:

- ► a sintering plant making Denilite, a lightweight aggregate
- ► one of the largest under-roof prestressing plants in the country
- ► a high-production concrete block plant
- ► five ready-mixed plants operating 60 trucks

Some special features:

- a sintering plant
- an under-roof prestressing plant
- a high-production concrete plant
- five ready-mix concrete plants
- two large warehouses

By HUBERT C. PERSONS

go hand in hand

- a large brick works
- two large building material warehouses handling over 3,000 items

Denilite was developed by the Moss Light Aggregate Co., a Denie affiliate. It is made from loess, described geologically as a wind-blown clay. Deposits of loess extend in a 170-mile wide strip in the central part of the United States from near Kansas City to Holly Springs, Miss. It is mined at a site about one-half mile from the plant at an average depth of 23 ft. using a Caterpillar Model 12 motor patrol with a Dumore elevating grader. This unit cuts a 12-ft. swath 12 in. deep and deposits the material on the conveyor belt of the Dumore attachment, which loads DW 10 Caterpillar 10-cu. yd. bottom dump trucks. Two of these units are

Aggregate storage silos at the concrete block plant

Pioneering & prosperity

Continued . . .

used to haul the clay half a mile to a 50 x 200-ft. open-sided storage shed.

The clay is taken from the storage shed by a Sauerman cable scraper and dumped through an apron feeder into a Jeffrey mud hog which pulverizes it. The pulverized material is then conveyed to a surge hopper, which feeds the clay through an automatically controlled gate to a 130 ft. long, 24-in. belt conveyor leading to a pelletizing mixer made by the Toma Machine Works, Memphis. About 10 percent by volume of coke breeze, mechanically proportioned, is also fed to the belt from a 40-ton silo near the surge hopper.

The mixer is 4 ft. in diam. and 10 ft. long and rotates at approximately 10 rpm. When water is added, the rotation of the mixer plus the action of a paddle turning at 200 rpm. in the opposite direction, converts the clay and coke breeze into pellets, 1/16 to 3/8-in. in diameter.

From the pelletizing mixer, the pellets are fed through a swing chute to one end of the sintering machine, which is a conveyor belt made of iron grate bars, 5 ft. wide and 75 ft. long moving over a series of wind boxes. The charge of pellets first passes under a gas-fired ignition hood which is immediately over a wind box under the grate. Here a 4 to 6-in. vacuum pulls hot gases at 2,500 deg. F. through the charge, igniting the coke breeze. The sintering machine belt travels at approximately 6 to 8 fpm. over a series of five wind boxes, the draft varying from 6 to 21 in. throughout the 75 ft. length. The result is a cake of expanded aggregate 5 ft. wide and 8 in. thick weighing 1,250 lb. per yd.

At the end of the sintering belt the hot material passes through a cake breaker which reduces the mass to 4-in. pieces. From the cake breaker, the hot aggregate drops into a 5-cu. yd. electrically operated skip hoist which elevates it to the top of

Section of the stockpile at the block plant

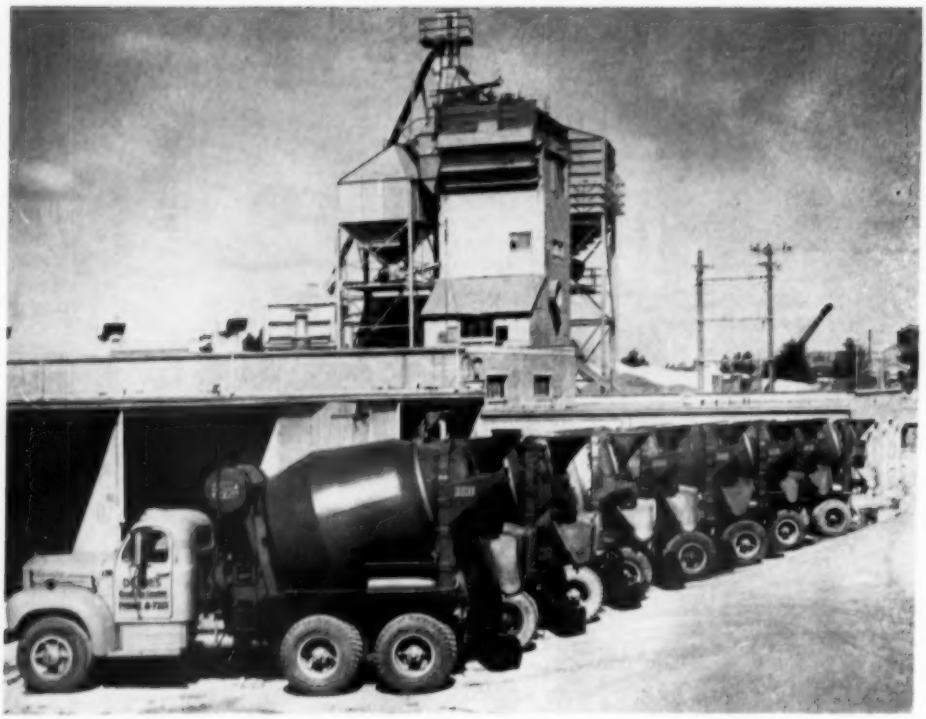
a 30-ft. tower leading to a hot pile. After the material has cooled for 12 hours, it is moved to a stockpile by a Northwest Model 5 crane with 2-yd. clamshell. The same crane takes the cool clinker from the stockpile as needed, to a pair of Riddell No. 9 rim discharge grinders. These grinders reduce material to approximately ⅜-in. minus diam. From the grinders the clinker is elevated 70 ft. on an 18-in. belt conveyor to a 7 x 12-ft. double-deck Simplicity vibrating screen. Here the material is graded into two sizes: one passing a ⅜-in. screen but retained on a ¼-in. mesh, the other passing a ¼-in. screen. Any material larger than ⅜-in. goes from the screens to a 14 x 32-in. smooth roll crusher where the roll setting is minus ⅜ in. and the oversize is recirculated. The roll crusher is made by the J. C. Steel Co., Statesville, N.C. From the screens each of the two sizes goes by gravity into one of the pair of silos, 20 ft. in diam. and 50 ft. high.

A conveyor belt serving the two silos permits the shipment of either size or a blend of both to Denilite customers for use in concrete products. Denilite weighs from 1,350 lb. to 1,600 lb. per cu. yd. according to gradation. Early in 1957 the plant, operating three eight-hour shifts, was producing 600 to 700 cu. yd. every 24 hours. Denilite is shipped in either gondola cars or hopper bottom cars to users in many towns within a radius of 175 miles.

The sintering plant was designed by R. F. Leftwich of the Aglite Co., New York, N.Y. The plant building, constructed of concrete masonry units is 50 x 120 ft. and 22 ft. high.

The prestressing plant is four miles north of Memphis. Facilities include a concrete frame building 500 ft. long and 50 ft. wide, equipped with a 10-ton traveling crane built by the Wilson Steel Co. of Memphis. The building contains one 400-ft. casting bed, two casting beds 220 ft. long and an assembling table 220 ft. long for multi-element prestressed concrete beams and slabs. Channel slabs and double-T beams can be made up to 5 ft. wide with 8 to 14-in. stems.

The 220-ft. beds are heated by natural gas burners made in the plant. A hot air system provided by two Herman Nelson heaters runs under the 400-ft. casting bed.



Modern, heavy-duty, transit-mix trucks lined up in front of batching plant illustrate the versatility of the Denie's Sons operation

Pioneering & prosperity

Continued . . .

Concrete for prestressed structural members is delivered to a 3-cu. yd. lay-down bucket by a mixer truck from the company's No. 2 ready-mix plant near by. High early strength cement with a cement factor of 6 to 8 bags is used with a small amount of Pozzolith added to increase plasticity. The lay-down bucket is hoisted by the overhead crane to a position over the casting beds so that the concrete can be ribboned out in a continuous run. Forms are vibrated with a Jackson flexible shaft vibrator. The vibrator is followed by a vibrating screed.

With the aid of the 10-ton traveling crane, forms are stripped after 24 hours under moist covers. Test cylinders are cast each day. Compressive strengths at 28 days range from 6,000 to 6,200 psi. Plant capacity is approximately 2,000 sq. ft. of double-T beams and approximately 2,500 sq. ft. of channel slabs.

The plant has its own quality control laboratory with a Forney 200-ton compression testing machine. The laboratory is also equipped to make slump and gradation tests.

The prestressed concrete multi-element beams are made up of 12 x 18-in. concrete block cast on a Besser machine. The block, which have been cured and tested to a minimum strength of 4,000 psi. at 28 days, are laid in mortar made of equal parts of high early-strength cement and sand, on the 220 ft. long assembly table. Seven strands of $\frac{3}{8}$ or 5/16-in. wire with a tensile strength of 240,000 psi. are passed through the cores of the

Please turn to page 210

Low Slump Concrete No Problem with Westinghouse Mixers...

• The Westinghouse mixer pictured above is pouring 1½" slump concrete on a private swimming pool job for C. W. Blakeslee & Sons, Inc. of New Haven, Connecticut. (The concrete must be stiff enough to trowel up the sides without sagging.) Despite the grade which hiked the rear end of the mixer the concrete discharged freely.

You'll Like Westinghouse Mixers for Other Reasons Too!

For instance . . . you'll like their patented, enclosed-gear drum drive with large ball-and-socket drum mounting. Maintenance costs are nothing as compared to other mixers.

You'll like their ability to take a fast charge without spillage and their fast, thorough, uniform mix.

You'll like their wide range of drum r.p.m.—for slow, accurate pouring to fast charge and discharge.

You'll like their simple, sturdy construction. Easy to operate, easy to service.

Before buying another mixer see your local Westinghouse Transit Mixer dealer for new 1957 catalog or write to

Pouring no slump concrete for curbs and gutters. Photo and report from Camarco Contractors, Inc., Carmel, N. Y.

Westinghouse Mixers are available in 4½, 5, 5½, and 6½ yd. sizes built to TMMB standards.

WESTINGHOUSE TRANSIT MIXER DIVISION

Le Tourneau-Westinghouse Company • Indianapolis 6, Indiana

Member Truck Mixer Manufacturers Bureau

Enter 1107 on Reader Card

An evaluation report—

Bituminous coatings for concrete—how effective?

By W. GRUEN*

BITUMINOUS PROTECTIVE PAINT COATINGS on a concrete surface should serve to retain the water necessary for the hydration of the cement firmly in the concrete and also to protect the fresh mortar against the action of aggressive fluids.

For the purpose of testing the suitability of various bituminous paints for this application, profiled concrete slabs were treated in the fresh condition with one to three bitumen coatings. No absolute dense film could be achieved with a one-coat finish. With a two-coat finish, the protective film was denser, since with this coating the pores of the first finish coating had been closed up. With a three-coat finish an absolutely dense protective film on the concrete mortar was obtained.

After coating, the protected mortar slabs were exposed to a two year test period by action of tap water (hardness 9.6 deg. DH), distilled water, two percent sulfuric acid, 10 percent magnesium sulfate solution, five-times concentrated sea water, 10 percent ammonium nitrate, 10 percent calcium chloride and mine water containing magnesium chloride.

The coated and non-coated concrete slabs were not damaged by exposure to tap water but the impermeability of the concrete to the water was considerably increased by two to three coats of bitumen finish. In the latter case, the underside of the slabs remained perfectly dry and water-seeping-through trouble had not occurred. With the action of distilled water on the non-coated test bodies, lime-leaching from the concrete was found to have occurred and the underside of the slabs showed calcium carbonate growth.

The concrete test bodies with a one-coat bitumen finish revealed, in certain places, a weak penetration-through of the water and commencement of lime-leaching could be seen. With two and three coats of bitumen finish, the underside of the slabs remained perfectly dry; a complete sealing of the surface was obtained with the protective coating.

A two percent sulfuric acid solution caused a strong destruction of the unprotected concrete. A one-coat bitumen finish gave insufficient protection here as did a two-coat finish. Only the three-coat bitumen protective finish withstood for any prolonged time the aggressive action of the two percent sulfuric acid.

The action of the 10 percent magnesium sulfate caused swell cracks on the unprotected concrete. The one-coat bitumen finish gave insufficient protection while the three coats of protective finish provided a complete protection to the concrete.

The five-times concentrated sea water likewise caused a definite damaging of the unprotected concrete. A three-coat bitumen finish gave complete protection in this case. The unprotected concrete was destroyed within a short time by the 10 percent calcium chloride solution, while two and three coats of bitumen finish again served to provide adequate protection. A similar result was given with the action of the mine water containing magnesium chloride. The protective action of the bitumen finish coatings was also confirmed by strength tests, shrinkage measurements and frost resistance tests on the concrete test bodies.

It was found that the concrete mortar treated with the bitumen coatings attained only about 50 percent of the shrinkage of the normal mortar.

END

*As published in Beton-Zement, Vol. 4, No. 5/6, pp. 65-68. Translated by R. M. Pearson, Sussex, Eng.

Block producers—

how to keep old markets and win new ones!

By MONROE WORTHINGTON

MANY BLOCK PRODUCERS have merely coasted to success with the shortage of competitive building materials caused by the building boom.

But will you be able to keep your present business, in the face of new competition? While it may hurt your pride to admit it, many of the homes which are being built of block, today, are not attractive, and are not convenient, even though they are low-cost and fire-resistant. They are not really up to-date, in the 1956 sense of the word. With a little additional expense, these homes could be both distinctive and comfortable. Is it your problem, as a block manufacturer, to offer this guidance? Possibly the answer may vary from place to place, but your prosperity and perhaps even your survival depends on finding the right answer.

To claim there is any simple formula for automatic success in an increasingly competitive building world would be to insult your intelligence. But there can be little doubt that effective advertising and publicity methods, combined with an increasingly good product, can keep and increase your share of the market.

Only around 18 makes of automobiles are being built in quantity in the United States today. While problems of finance and designing to meet public taste have undoubtedly contributed to the weeding out process, it also cannot be denied that *sustained* advertising has been used by the companies which are still in the business.

It is probable that the names Cadillac, Ford, Chrysler, Hudson, Packard, Chevrolet, and all the rest are better known to everyone than the name of your block. But the makers of these cars dare not stop advertising, just because their names are known.

Advertising has at least two purposes which it can accomplish for you. One is to maintain your present share of the market, and the second is to enlarge it.

Far less is being spent on housing, today, than has been true in the past. There may be a larger dollar volume, but the percentage of a man's income that is devoted to building a home has shrunken to 12 percent, where it was once from 20 to 25 percent. This is on the authority of *House and Home* magazine. "Everyone is spending less for a home because he has been persuaded to spend proportionately more for autos, travel, food, clothes, entertainment, liquor, and television."

However, advertising alone cannot help you if someone else markets a superior product, or one which catches the fancy of the buying public. So you must be in the forefront of the production parade.

A new block producer, or an old one with a new idea for a better shape or an improved texture, may come along and make an intelligent bid for the "prestige" market. And he is likely to skim the cream of profits, while you take the low-margin business.

Should this new block manufacturer have a product which appeals, he can invade "your" territory, despite his possibly higher production and delivery costs. There is a tendency to think that freight rates are a perfect protection against distant competition. This is not always true. As evidence, I cite the experience of a local producer, who uses advertising with only moderate skill, but who has an appealing product. He makes block on a manually-controlled tamper-stripper at the rate of less than 1000 standard "equivalents" per day. They are at least 50 percent higher in price than the product of any competitor. Due to eye-appeal, alone, he is getting orders from 100 miles away. Recently he bought two additional tampers.

Let's study some of the actual ways in which advertising and publicity can be put to use. First of all, don't try to use one without the other.

A formula in preparing advertising has four steps:

1. Claim the prospect's attention (The headline, the picture)
2. Win his interest.
3. Create desire.
4. Get action — an inquiry or an order.

This formula can make your advertisements profitable and productive for you. But even if this formula were to be followed religiously and successfully, there would be many questions which you, the average block producer, would ask. For instance:

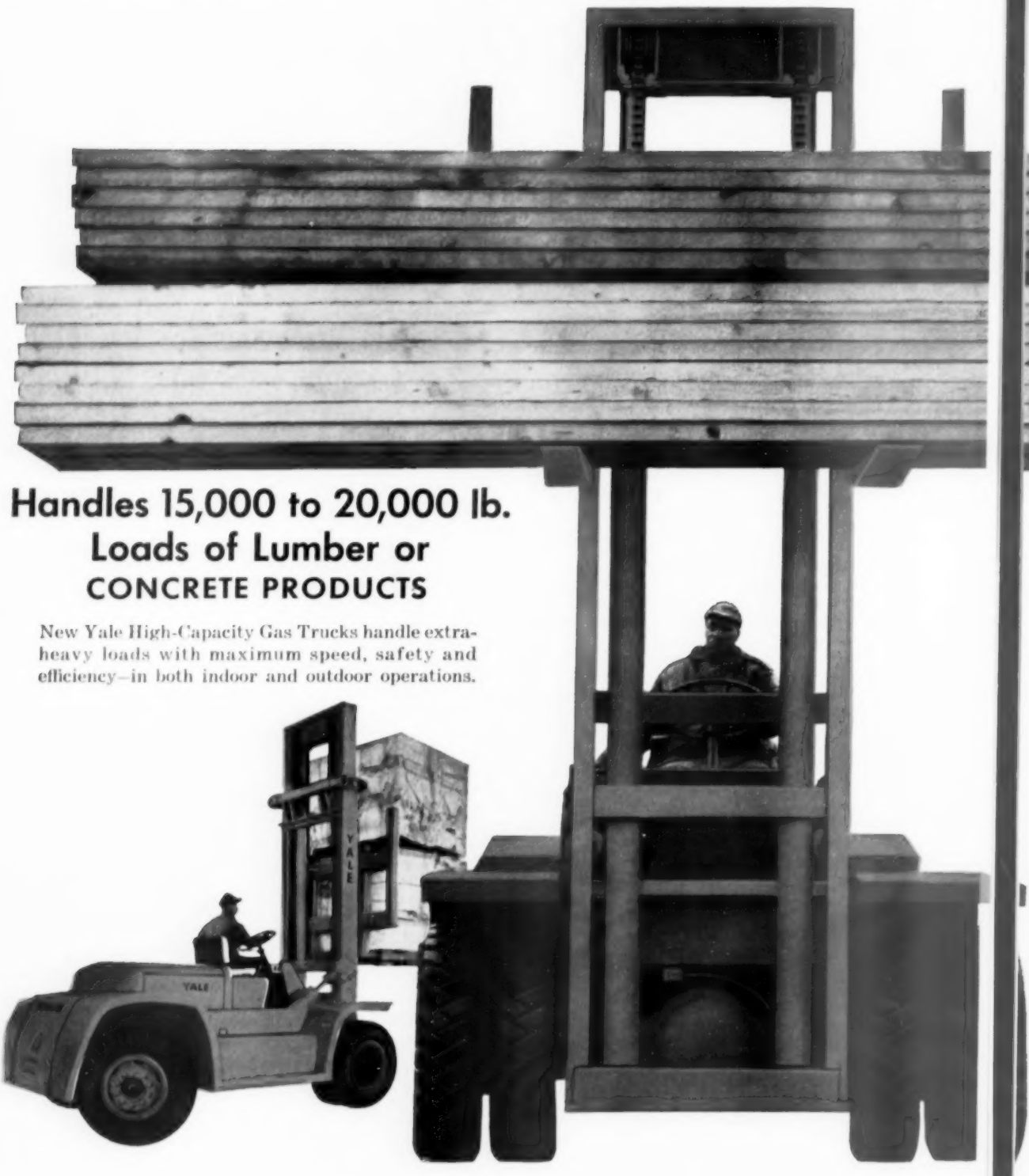
1. Which is the most effective; newspapers, TV, radio, direct mail, or signs and billboard? Actually, there is a place for each. Many advertisers get more for each dollar spent in newspaper space, especially for "reason why" copy, or for selling large items, such as the block for a home. If the

(Continued on page 214)

To meet the need of expanding industries for better materials handling methods, look to Yale for advances in research, engineering, manufacturing, sales and service—as

YALE BUILDS FOR THE NEW ERA

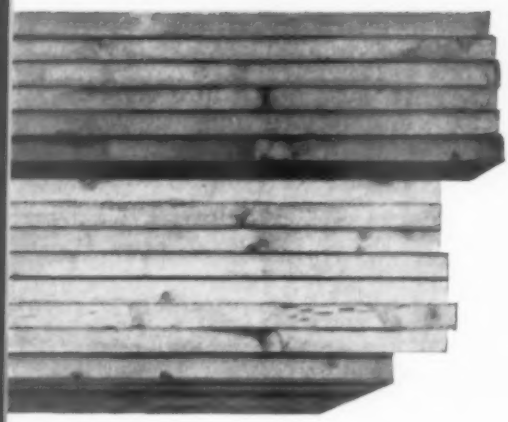
Now...first and



Handles 15,000 to 20,000 lb. Loads of Lumber or CONCRETE PRODUCTS

New Yale High-Capacity Gas Trucks handle extra-heavy loads with maximum speed, safety and efficiency—in both indoor and outdoor operations.

only high-capacity gas truck with full visibility



YALE WIDE-ANGLE VISION

300% MORE VISIBILITY THAN ANY OTHER TRUCK OF ITS TYPE! Not just straight-ahead vision–but "corner of the eyes" vision, too–*fully functional* visibility with the big, open look of new Yale High-Capacity Gas Trucks. Operator sits high and in center. Upright channels are wide-spaced, nested to reduce frontal obstruction. Right next to them–the hoisting cylinders, one right, one left. Chains that raise carriage are in front of cylinders–*out* of the arc of vision.

Carriage has one top bar, one bottom bar–good visibility between them at all levels of fork lift. Channel cross members are at channel ends–none between. When an attachment is used, hydraulic hoses are located in front and behind cylinders–not in the line of sight. Whether looking forward or to the rear, the operator sees more. Result: these new Yale trucks with "Wide-Angle Vision" promote safer, faster, more efficient handling of 15,000 to 20,000 lb. loads.

GREATER STABILITY. Lifting, lowering, traveling–these Yale trucks keep capacity loads in precision balance! Minimum weaving with full loads, because the trucks are built low–low center of gravity, with high underclearance. Extremely rugged design. Broad lifting base afforded by two ball-mounted lift cylinders. Wide channel-roller spacing at all points of lift, plus side-thrust rollers on channels and carriage, further increase stability factor. Large-size, high-flotation tires give good traction under severest terrain conditions.

FAST CYCLE OPERATION. New Yale High-Capacity Gas Trucks have lifting speeds up to 60 feet per minute; fast, safe lowering; travel speeds up to 20 miles per hour; easy maneuverability.

TOP PERFORMANCE UNDER TOUGHEST CONDITIONS

Here are just a few of the premium engineering features–all included as *standard*–that give new Yale Gas Trucks a big edge in stamina and safety under all conditions:

- I-beam side members in frame for extra strength.
- Channels mounted on ball-bearing rollers to reduce friction and wear.
- Ball-mounted, self-aligning hoisting cylinders.
- Gear shift lever, plus hoist, tilt and attachment lever at right side of driver. Directional control lever conveniently located on steering column.
- Power steer with two balanced hydraulic cylinders, one to each rear wheel, to reduce stress on bearing points and linkage.
- Your choice of Yale Fluid Coupling or standard transmission.

Designed for complete selection of attachments–engineered for a minimum loss distance.

YALE*

*REG. U. S. PAT. OFF.

INDUSTRIAL LIFT TRUCKS AND HOISTS

YALE & TOWNE

The Yale & Towne Mfg. Co., Materials Handling Div. Manufacturing Plants in Philadelphia, Pa., and San Leandro, California

The YALE & TOWNE Manufacturing Co., Dept. A-435
Roosevelt Blvd., Philadelphia 15, Pa.

Please send the new Yale High-Capacity Gas Truck brochure No. 5230.

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

In Canada: write The Yale & Towne Manufacturing Co., St. Catharines, Ontario, Canada

Gasoline, Electric & LP-Gas Industrial Lift Trucks • Worksavers • Warehousers • Hand Trucks • Hand and Electric Hoists

Enter 1142 on Reader Card

Showing how colored concrete stone may be laid up in a wall

Color stone — a versatile new concrete product

By VELMA NIEBERDING

"COLOR STONE", a new concrete product made in varying sizes to match practically any color scheme and design desired is now being produced by George Mayer of Miami, Okla. Patents are pending for the design and manufacturing process. In addition to filling orders from local builders, Mr. Mayer is in the process of manufacturing molds of his own design to be used by franchised dealers in other cities.

Mr. Mayer, who began to work out his ideas for a colored building stone over five years ago, had in mind to utilize the by-products of the mines around Miami for the aggregates in the concrete-base mix. He began a constant "trial and error" method until he found the stone that would withstand the tests to which it was subjected.

In the new process, the ultimate or crushing strength of each of the new "color stones" is approximately 5000 p.s.i.

In freezing and thawing tests the "stone" is soaked in a vat of water for 24 hr., placed in a deep-freeze temperature of 12 deg. for 24 hr., then removed and allowed to thaw to room temperature, during the next 24 hr.

Some of the aggregate disintegrated after 12 or 15 cycles of testing. Then would begin the laborious process of trying another kind of rock until finally he found the one that withstood successfully the cycle test for nine months. At the end of the test, it was reported that not even a surface deterioration could be detected by chemists conducting the tests.

The mix out of which the stones are cast is a slump concrete product, mixed with crushed limestone and aggregates including fines up to ⅜ in. Incorporated into this mix are the permanent colors and an integral water-proofing material recommended by government engineers. It is a complex formula developed by Mr. Mayer through months of careful and patient experimenting.

Northeastern Oklahoma has large out-croppings of sandstone, limestone and shale. It is from this local rock that the aggregates are produced—the eye-catching filler aggregates that show through the colors of the stone where it is cut after coming from the mold.

Hundreds of molds were made and rejected before Mr. Mayer settled on the type now in use. They are so designed that the "stones" are molded in triplicate units which are broken into single block by a hydraulic press.

Stones are made 12 in. wide by 24 in. long, and range in thickness from 1 in. to 4½ in. Thus all combinations of length or thickness can be used in laying the stones, making it very practical to fit around window sills, turning corners, etc. Fractional lengths can be broken on the job to assist in laying up attractive patterns.

All the stone is designed for a ½ in. mortar joint. As a 4-in. veneering stone, it can be used in full 24-in. lengths, using one size only for the complete structure. Or it can be laid in ashlar style using several sizes.

A 4½-in. jumper is available for two 2-in. or one 1½-in. and one 2½-in.; a 3½-in. jumper for two 1½-in., or a one inch and one 2-in. A 4-in. jumper is used for three 1-in. or two 2-in; or a 3-in. and a one-inch can be jumped with a 4½-in. A one-inch and a 1½-in. is jumped by a 3-in. stone.

When laying in ashlar style, using all eight sizes, it is impossible for a stone mason to find himself in a position where he is looking for a special size. Any size will fit any place.

Although the plant has been in operation only a few months, the new color stone is being used for fireplaces, walls and ornamental work.

END

It all adds up to THIS!

51: A producer views the ready-mixed concrete business: This article, the second of two parts, deals with the handling of problems other than the adequacy of cement supply

By JAMES A. NICHOLSON*

A COMPANY CAN'T STAND STILL. It either moves forward or it falls backward. To move forward, a ready-mixed company must successfully handle the big problems that it faces and adequacy of cement supply is not the only big problem. To handle the big problems successfully takes a lot of planning and doing.

Throughout this series of articles and in many fine articles that have appeared in a number of trade magazines during the past several years, many ideas and suggestions have been advanced. Some of these thoughts might have helped certain producers to correct methods and improve operations. Through personal contacts with other ready-mix operators and by careful reading and studying, an alert producer can keep abreast of developments in the industry. To be successful, ready-mix management must be alert, hardworking and progressive.

All ready-mix producers should take a good look at each and every operational phase of their business. Each operating problem should be carefully studied and analyzed. Every effort should be made to have an efficient, low cost plan operation and a fine appearing, carefully operated, properly conditioned fleet of mixer trucks. To handle production, delivery and maintenance problems successfully, proper attention must be given to selection of key personnel, hiring and training of employes, work supervision, selection of plant site and equipment, operation and care of plant, buying the right kind of trucks and mixers, developing better procedures for weighing, charging, mixing and discharging, getting improved job performances by all employes and to the cleaning, lubricating and other servicing of all plant and delivery equipment.

A producer has an efficient plant operation if sufficient overhead storage and adequate material handling equipment are provided; well graded quality aggregates of approximately uniform moisture content are elevated into the bin compartments; adequate cement is available with different types and brands being kept carefully separated; each bin compartment has two fast operating, properly placed gates to swiftly gravity feed the aggregates; scale facilities are fast and accurate with proper attention given to assure close weighing of cement; the weigh hopper is so shaped that batches clean out completely and the hopper is large enough to handle in one charging the biggest truck mixer used in the operation.

The plant may be either a batching plant or a central-mixing operation. In either case, careful controls must be placed over weighing, charging and mixing procedures. The weighman in a batching plant and the mixer operator at a central mixing plant are vitally important employes. On these two men rests the prime responsibility for the quality of a producer's concrete. Any good producer makes certain that he has placed this responsibility in capable, trustworthy hands.

In weighing out materials for concrete, painstaking exactness must be the rule. The use of inadequate scaling equipment or the employment of incompetent personnel is inexcusable. Not only must scaling equipment be carefully operated; through regular checks and services, it must be maintained in top operating condition.

At all plants, charging of truck mixers must be fast and efficient. Bottlenecks and holdups must be eliminated. Care must also be taken to eliminate any possibility of cement balling. Whether central mixed or transit mixed, given types of concrete should be mixed the same length of time or approximately the same number of drum revolutions. Where two loads of concrete are made up of the exact

(Continued on page 192)

*Pres., Nicholson Concrete Co., Toledo, Ohio

IN 2 YEARS, JUST

"Fabulously low maintenance" says Fischer Lime & Cement Co. in joining the big switch to Worthington Hi-Up Truck Mixers

The part that George M. Fazackerly of Fischer Lime & Cement Co., Memphis, Tenn., is holding in his hand cost $7.00. In the two years they've been on the job it's the only replacement item that 15 Worthington Hi-Up truck mixers have needed to keep in top condition.

This outstanding maintenance record is no accident. One of the industry's pioneers with 22 years of continuous operation, Fischer has learned long ago that a regular program of rigid maintenance pays many dividends.

To keep the fleet of 54 mixers on the job, Fischer has a modern, fully equipped service and repair garage. There's even a unique five-rack wash stall for drum washouts.

The Worthington Hi-Up truck mixer also comes in for its share of the credit. Says Mr. Fazackerly, "For ability

Truck Mixers sold by Carey Equipment Company, Memphis, Tennessee

$7 FOR REPAIRS!

to take it day-in and day-out you can't beat a Hi-Up."

Since the photo was taken, Fischer Lime & Cement Co. has added 15 more mixers to the fleet. All Worthington Hi-Ups, of course. Like many other operators, they find the husky Hi-Up the leader in easy handling and low, low maintenance.

Ask your Worthington distributor for a "Mixerama" demonstration. It's an eye-opening exhibition of Hi-Up performance on the job. Or write for Bulletin 1260-B1A to Section R-71, Worthington Corp., Harrison, N. J. In Canada: Worthington (Canada) 1955, Ltd., Toronto, Ont.

THE BIG SWITCH TO WORTHINGTON. *Every year since 1952, ready mix operators have chosen more Worthington Hi-Up's than the year before.*

WORTHINGTON

Enter 1108 on Reader Card

Using The Checklist

Most producers should be able to use the check list in helping them to rate the present condition of their overall operations. After one rating, a producer might wish to add other listings that are more closely representative of his own company's problems. By submitting his operations to an annual rating check-up, a producer might be better able to analyze individual department improvement and overall company progress. The rating could also be used to periodically check weaknesses of a ready-mixed concrete company's operations. A single month might be largely given over to an attempt to improve one operating phase of the business.

A checkup on quality control problems might show that cements are being wrongfully and unnecessarily intermixed; some aggregates are of questionable soundness; sand is improperly graded; cement balling is occurring; some hot, dry slag is wrongfully being used in concrete; standard mixing procedures are not being followed; air contents are jumping all over the lot; excessive water is being added on jobs; finishers are improperly handling concrete and much exposed concrete is not getting proper curing protection. A producer might set aside the month of October to see what can be done to improve quality of his concrete.

Similarly, a producer might take another month (e.g., November) for working out improvements in making concrete deliveries. It might be decided that bigger hauling units are necessary; it would pay to standardize on a certain (make and model) tandem truck; more time will be given to breaking in drivers; all driving axle wheels shall be equipped with road lug type tires; a closer check will be made over drivers' trip times; more attention will be given to appearance and condition of mixer trucks; an effort will be made to develop a more effective preventive maintenance program and that two-way radios will hereafter be used on all mixer trucks.

The hope is that for the good of our industry, every producer will be constantly trying to improve his own operations. If a producer is regularly setting aside a period to improve one end of his business, he should soon be doing a better overall job. Having used the check list to review our own operations, we know there is plenty of work to be done on solving problems, seeking improvements, and developing better operating procedures. We also know that every visit with another ready-mix producer will most certainly bring forth an idea which enables us to handle some regular tasks or duties more efficiently. By continuing to share ideas, all of us will be able to do a better job.

Mark from one to 10 points on the checklist depending upon how well your company rates in answer to each question.

THE CHECKLIST

	Mark one to 10 points
1. Our company has a well managed front office.	
(a) Office methods are regularly checked and improved.	
(b) Paper work is efficiently handled through effective forms, records and filing procedures.	
(c) Adequate office, vault and storage facilities are provided.	
(d) Bookkeeping procedures are carefully planned and carried out.	
(e) All financial transactions are closely controlled.	
(f) Accountants periodically provide management with required information.	
(g) Tax returns and other reports are promptly and accurately prepared.	
(h) Accounts payable and receivable are efficiently handled.	
(i) Invoices are promptly and accurately prepared.	
(j) All important sources of credit information are regularly used.	
(k) Pending investigation, a new customer is held to reduced credit limits and to shorter credit terms.	

NICHOLSON

(Continued from page 189)

same materials but one load is mixed three times longer than the other, there will be great variations between the loads (especially with air-entrained concrete) in slump, air content, yield and strength.

At all concrete plants, careful controls should be maintained over moisture content of the aggregates, mixing water and air content of the concrete. Every batching plant should have a moisture determining facility which should be used regularly. Every central-mixing plant should be operated under the control of both moisture and slump determinants.

To produce concrete of controlled air content, regular cement should be used and the required amount of air-entraining agent should be added at the mixer by means of an automatic dispenser. Similar equipment should be used to accurately measure out calcium chloride and any other admixtures that a producer might find necessary or profitable to use. The addition of excessive water has the same harmful effect as cheating on the amount of cement used in concrete. To produce quality concrete, proper attention must be given to the mixing water added to each batch of concrete. The system of water control which is used should be the kind that best fits the particular operation.

An efficient ready-mixed concrete producer puts on the road properly serviced mixers and trucks that are built to handle the largest possible legal loads; mixer trucks that are manned by safety minded, competent drivers. Any good ready-mix producer is safety minded. Throughout the United States in large, small and medium sized operations, safety programs of all sizes, descriptions and costs are helping individual ready-mix producers make their plants better, safer plants in which to work. Through carefully thought out safety plans, producers are cutting down the number of working hours lost through avoidable accidents, putting safer, better conditioned trucks on the road, developing improved driving procedures, making possible more delivery trips per day, giving better service and effecting sizable savings in insurance protection.

Trucks that have bad brakes, are leaking oil or require frame repair should never be put on the road. Why take a chance on a life, a ruined engine or a broken frame? A mixer truck, because of its weight, size and

shifting load is somewhat of a road hazard; without brakes, it can quickly become a killer. Our industry cannot afford to use improper operating trucks or employ careless, accident prone drivers. All drivers should regularly be cautioned, "Watch Out For Kids." This warning should be repeated and repeated. All producers have a great moral responsibility to carefully and safely operate a fleet of mixer trucks that are unquestionably maintained in the best possible condition.

A producer assures efficient deliveries by buying the right kind of trucks and mixers, employing careful, well-trained drivers, developing effective lubrication and tire care programs, having delivery equipment regularly checked and serviced by competent maintenance personnel, using effective dispatching procedures, installing two-way radios, keeping good cost records, and above everything else having mixer trucks ready to roll when needed.

A good producer is cost conscious and efficiency minded. Such a producer sees to it that daily checks are made over such matters as morning preparations, first-round deliveries, coffee breaks, bottlenecks, unauthorized trip stops, job performance, noon hour, afternoon clean-up, plant breakdowns and truck downtime. Every effort is made to speed up plant operations, improve maintenance work, eliminate lost time, lower handling costs, cut down man-hour requirements, improve driver performance, give better service and reduce delivery expense.

In purchasing new truck mixers, a producer should follow the oft-repeated advice of Bob Shieley and other industry leaders. He should buy the equipment that he believes will give him the biggest legal payload, fastest charging and discharging, best mixing action and lowest operating and maintenance costs.

After buying the right kind of trucks and mixers, a good producer makes certain that his hauling equipment receives proper care. Quickly and efficiently, each driver makes his morning preparations so that he is ready to pull under the weigh hopper by the time that the first load for his truck mixer is ready. All required checks of truck and mixer equipment are promptly made. Both engines (truck and mixer) are properly warmed up. Any daily lubrication is attended to. If required, the exterior of the mixer drum is coated with form oil. Every effort is made to have the equipment in readiness for a full day's work.

(Continued on page 196)

(l) Our company is cooperative in interchanging credit information. _____

(m) Proper attention is paid to granting credit and pushing collections. _____

(n) Lien rights are protected and bad credit risks are eliminated. _____

(o) Office people cooperate and work together as a team. _____

(p) Control is maintained over material and parts inventories. _____

(q) Friendly attitude of office personnel promotes better customer and public relations. _____

2. Our company has an efficiently operated plant (or plants).

(a) Plant is ready on time for daily operations. _____

(b) Adequate overhead storage bins are provided. _____

(c) Plant is equipped with adequate material handling equipment. _____

(d) Weighing operations are fast and accurate. _____

(e) Effective steps are taken to prevent segregation and cement balling. _____

(f) Truck mixers are promptly loaded through efficient charging operations. _____

(g) Plant employes are industrious, careful and competent. _____

(h) Plant is kept cleaned, lubricated and well serviced. _____

(i) Preventive maintenance procedures hold downtime and breakdowns to a minimum. _____

3. Our company has an efficient delivery system.

(a) Trucks and mixers are kept clean, make a fine appearance and are maintained in best possible operating condition. _____

(b) Mixer trucks are manned by competent, safety-minded drivers. _____

(c) The on-job performance of men, mixers and trucks is a credit to our company. _____

(d) First round deliveries go out on time; there is a minimum of tardiness and absenteeism. _____

(e) Operating personnel cooperate to keep deliveries on schedule. _____

(f) At the plant, over the highway and on jobs, our drivers hustle and cooperate. _____

(g) Contractors are promptly notified of delivery holdups. _____

(h) Drivers use spare time to improve appearance and condition of equipment. _____

(i) By carefully checking drivers' trip times, more deliveries are made per day. Every effort is made to improve job handling practices. _____

(j) All accidents are promptly and accurately reported. _____

(k) Company has a drivers' suggestion program. _____

(l) Drivers keep daily log cards and hand in operating condition reports. _____

(m) When peak days come, trucks and men are ready to roll. _____

(n) Ordertaking and dispatching are efficiently handled. _____

(o) Few mistakes are made on delivery addresses and other matters. _____

(p) Fieldmen help line up advance orders. _____

(q) Daily deliveries are carefully planned in advance. _____

Here's gravity-dumping in action! Owner of this Mid-West limestone quarry uses 3 Koehring Dumptors to haul blasted rock ¾ mile over winding road from pit to crusher (above). Dumptor drives up to hopper, body forward, dumps — one second later is on its way back to the shovel (below).

In the quarry, rock is being loaded from 25-foot limestone face by a Koehring ¾-yard shovel. Combination of Dumptors with Koehring shovels makes a dependable, high-production team! Consider the operating efficiency, economy, and time-saving convenience of standardizing on Koehring for all excavating and hauling.

CK763

Dumps in ONE SECOND

increases output 9%

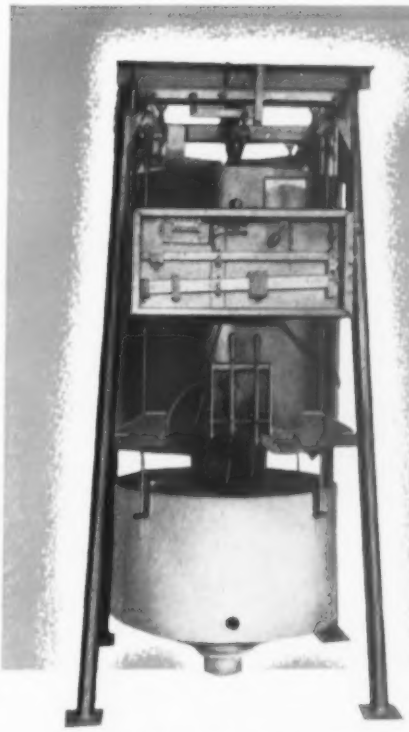
What's the dumping time of your hauling units? 15, 20, 25 seconds? That's where you can save time, get more trips an hour, by dumping in *one second* with Koehring 6-yard Dumptor. It has no slow-acting body-hoist. Operator trips the body-release lever, and *gravity* tilts the body 70 degrees. One second later the load is out, and Dumptor is on its way back for the next load. This adds up to a substantial increase in extra yards per hour. For instance —

Take a typical 1,000-foot haul, where you would normally make 16 trips an hour. By saving an average of 20 seconds dump-time on each trip, Dumptor gains 320 seconds, or 5.3 minutes more productive haul-time per hour. You get 17½ trips, instead of 16. This, alone, adds 9% to hourly production. But that's not all —

There are no expensive hoist replacement parts, hoist maintenance, or down-time delays, because *gravity-dump* never balks, never wears out. You get the same one-second dumping *every time*, under heaviest loads, in all temperature extremes. In wet materials, free-swinging kick-out pan breaks load suction — bolts down to Dumptor floor when hauling rock.

Add up your dump-time and body-hoist maintenance costs — see for yourself how much you can save by hauling with Koehring heavy-duty Dumptors. Check, too, how *no-turn* shuttle-hauling cuts another 15 to 30 seconds off cycle time. It will pay you to get the complete Dumptor® story from your local Koehring distributor. Call him *today*.

KOEHRING DIVISION
KOEHRING COMPANY
MILWAUKEE 16, WISCONSIN

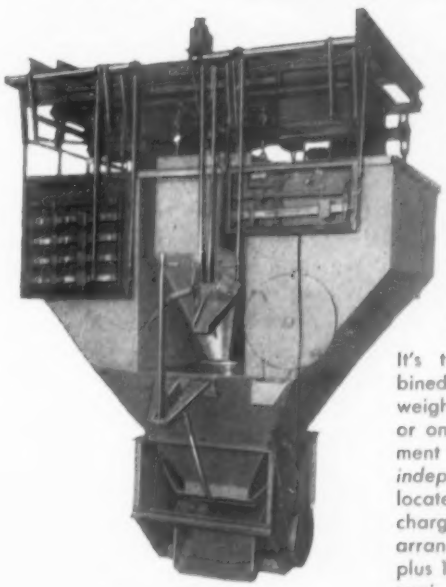


Accurate water weigh-batching

assures close quality control in production of ready-mix concrete. When water is batched by weight, accuracy is not affected by changes in water temperature — regardless of whether cold water is used in summer, or heated to 180°F. in winter. Reservoir type batchers also maintain top-speed weighing, even where low water pressure is encountered. To get this speed and accuracy in your plant, specify a Johnson water batcher.

2 sizes: 120-gallon (1,000 pounds) for batches up to 3 yards, and 240-gallon (2,000 pounds) for batches up to 6 yds. Semi- or full-automatic.

2 WAYS to increase batching efficiency



Central cement-feed

prevents "gumming", reduces dusting, and pre-shrinks materials. You get this unique advantage with Johnson Concentric batcher, because the aggregates are arranged concentrically around the cement. All ingredients are intermingled as they flow through discharge.

It's two separate batchers combined in one unit. Aggregates are weighed on accumulative dial scale, or on individual beam scales. Cement is weighed separately on an *independent scale* in a centrally-located, sealed hopper. Dual discharge available. Sizes: 2 to 8 yds., arranged for 2 to 8 aggregates, plus 1 to 4 types of cement. Manual, semi- or full-automatic operation.

Want more facts?

mail to: C. S. JOHNSON CO., Champaign, Ill. (Koehring Subsidiary)

Send us literature on: ☐ Water batchers ☐ Concentric batchers

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ STATE _____

V28P

Enter 1055 on Reader Card

(r) Continual effort is made to arrange more afternoon deliveries. _____

(s) A schedule board is effectively used to make possible more on-time deliveries. _____

(t) In better controlling deliveries, mixer trucks are equipped with two-way radios. _____

4. Our company has a sound, well organized sales policy.

(a) Field representatitves are carefully chosen and trained. _____

(b) Fieldmen are properly organized and prepared to do an effective personal selling job. _____

(c) Sales efforts are backed up by an effective advertising program. _____

(d) The fine appearance of mixer trucks helps to sell concrete. _____

(e) Concrete and other products are aggressively merchandised. _____

(f) Continuing efforts are made to get new customers. _____

(g) All employes cooperate in lining up new business. _____

(h) Building reports are studied and all building leads are aggressively followed up. _____

(i) Friends and suppliers help sales department in developing new business. _____

(j) In selling concrete, our company pushes service and quality rather than price. _____

(k) Proper care is used in pricing concrete. _____

(l) Aggressive promotional efforts are made in architects' offices and elsewhere. _____

5. Our company has proper controls over concrete quality.

(a) Aggregates are sound and well graded. _____

(b) Brands and types of cement are kept carefully separated. _____

(c) Concrete is properly designed for intended job use. _____

(d) Weighing, charging, mixing and discharging operations are carefully controlled. _____

(e) Use of excessive mixing water is avoided. _____

(f) Air entrainment is used in all exposed concrete. _____

(g) Materials and concrete are properly sampled and tested. _____

(h) Proper follow-up is made on job handling practices (placing, finishing, and curing). _____

(i) Mixer drums are kept free of concrete buildup and mixing blades are maintained in good condition. _____

6. Our company has an effective preventive maintenance program.

(a) We buy the right kind of trucks and mixers. _____

(b) Our trucks and mixers are regularly serviced by competent maintenance employes. _____

(c) Drivers properly prepare equipment for each day's operation. _____

(d) Mixers and trucks are kept clean. _____

(e) We have a good tire care program. _____

(f) Mixer trucks are regularly, systematically lubricated. _____

(g) Our mixer trucks make a fine appearance. _____

(h) Mixers and trucks are maintained in good operating condition. _____

(i) Trucks with bad brakes are promptly garaged. _____

NICHOLSON

(Continued from page 193)

At the plant and on the job, properly trained drivers use any spare time to clean, check, lubricate, tighten and adjust equipment. Upon returning from his final trip, a driver gives his truck and mixer a complete cleaning. Any splashing or buildup of concrete is carefully removed. There is no valid excuse for either a dirty or a poorly maintained mixer truck. On care of mixer trucks, several points are crystal clear: — (1) each driver should be held accountable for the appearance and condition of his own equipment; (2) the driver who doesn't keep his equipment clean and in good operating condition, should be taken off the unit; (3) any time that a substitute driver operates a mixer truck, the unit should be inspected both before the new driver takes over and after he is through operating the equipment; (note — in this and other ways, responsibility for care of equipment should be placed with one designated employe); and (4) an average thirty minute extra clean up time at the end of a day is adequate for a competent driver to do a good cleaning job on his truck and mixer.

To keep equipment in top operating condition, drivers, greasers, tire care men and mechanics must work together as a team. In addition to proper operation and care of his equipment, each driver must promptly report any needed repairs. Based on age and operating conditions of the equipment, a good producer plans and carries out a day by day, year-around maintenance schedule of truck and mixer servicing, including checking, inspecting, lubricating, tightening, adjusting, repairing and overhauling.

Practically all operating problems concerned with production, delivery and maintenance have been carefully discussed in earlier articles of this series. In those groupings there are many big problems that must be efficiently handled. However, when a producer has to go up against competition, he faces the big problems that really count.

Here we are talking about such important problems as living up to promises (e.g., making on-time deliveries of quality concrete—getting concrete to customers as they want it, when they want it); comparable job performance of trucks, mixers and drivers; establishing proper control over quality of the delivered concrete; meeting job specifications; facing up to job troubles; defending against faulty sampling and

(Continued on page 199)

6 1/2 CUBIC YARD MIXER
NATIONAL READY MIXED CONCRETE ASSOCIATION
7 CUBIC YARD
MIXER
MAXIMUM CAPACITY
CERTIFIED BY THE TRUCK MIXER MANUFACTURERS BUREAU TO COMPLY WITH ITS STANDARDS FOR TRUCK MIXERS AND AGITATORS AS APPROVED BY THE N.R.M.C.A.
9 CUBIC YARD AGIT
9 1/4 CUBIC YARD AGITATOR
UNLESS RATED LOWER ON THE MANUFACTURER'S DATA PLATE
N.R.M.C.A. REGISTRY NO

Old Rating Plate

Corresponding New Rating Plate

Effective now . . . new standards and rating plates for truck mixers, agitators

MAXIMUM CAPACITIES IN CUBIC YARDS OF MIXED CONCRETE

TRUCK MIXER	3½	4	5	5½	6	6½	7	8	8½	9*
AGITATOR†	4½	5¼	6½	7¼	7¾	8½	9¼	10½	11¼	12

* Truck mixer sizes larger than 9 cu. yds., in increments of 1 cu. yd. only, are standard when conforming to all Bureau requirements.

† Unless a lower agitator capacity is shown on manufacturer's data plate.

The above capacity standards of the Truck Mixer Manufacturers Bureau, approved by the National Ready Mixed Concrete Association, became effective on May 1.

Note that they simplify truck mixer standards by eliminating the former dual system of "rated" and "guaranteed" capacities. Only one rating, for "maximum" capacity, is now given. This corresponds exactly to the former "guaranteed" capacity rating. Its drum volume requirements have, therefore, been used, proved and officially accepted for nearly four years (since September, 1953).

Three New Sizes

New 5½, 6½ and 8½ cubic yard ratings, based on the same drum volume ratio as the other sizes, have been provided. A complete choice of standard sizes is now available to match today's truck capacities, highway weight laws and the operating needs of every user.

More exacting standards have also been established for mixing time and water systems. In addition to accuracy of measurement within 1% of tank capacity when standing level, it is now required that measuring tank and pump be capable of delivering not less than 45 gallons per minute *into the mixer drum*.

New Plates, Printed Standards Offered

Owners of truck mixers now carrying Bureau rating plates of 3 - 3½ or larger size may replace them with new plates, which will be supplied without cost on application to the Bureau.

Copies of the new standards are offered to architects and engineers who maintain these high quality standards by writing them into their own ready mixed concrete specifications.

Address requests to TRUCK MIXER MANUFACTURERS BUREAU, Munsey Building, Washington 4, D. C.

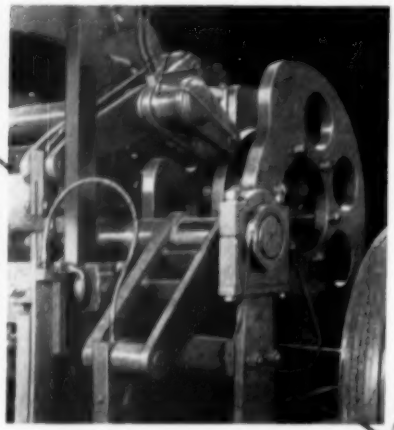
Member Companies

BLAW-KNOX CONSTRUCTION EQUIPMENT DIV.
Mattoon, Ill.
CHAIN BELT COMPANY
Milwaukee, Wis.
CHALLENGE MANUFACTURING CO.
Los Angeles, Calif.
CONCRETE TRANSPORT MIXER CO.
St. Louis, Mo.
CONSTRUCTION MACHINERY CO.
Waterloo, Iowa
THE JAEGER MACHINE COMPANY
Columbus, Ohio
THE T. L. SMITH COMPANY
Milwaukee, Wis.
WESTINGHOUSE TRANSIT MIXER DIV.
Indianapolis, Ind.
WHITEMAN MANUFACTURING CO.
Pacoima, Calif.
WILLARD CONCRETE MACHINERY CO., LTD.
Lynwood, Calif.
WORTHINGTON CORPORATION
Plainfield, N. J.

Enter 1050 on Reader Card

4 Big Reasons *Why*

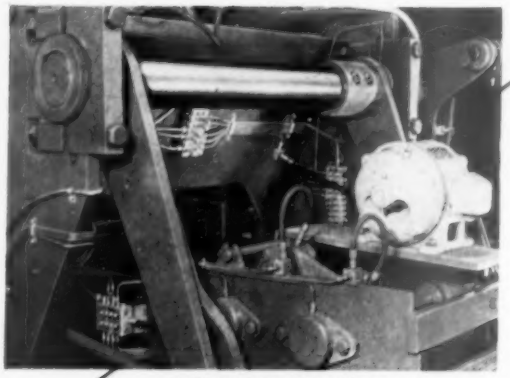
Block Makers Prefer VIBRAPACS



1

CAM OPERATED

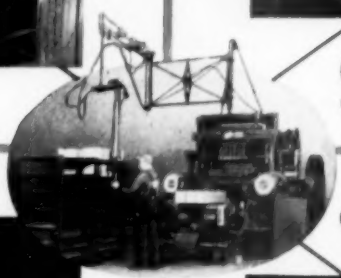
The famous Besser cam and roller principle of power application assures dependable operation. The slow revolving cam, with a roller riding on its surface, delivers power with pin point precision and with steady, uninterrupted regularity.



2

AUTOMATIC LUBRICATION

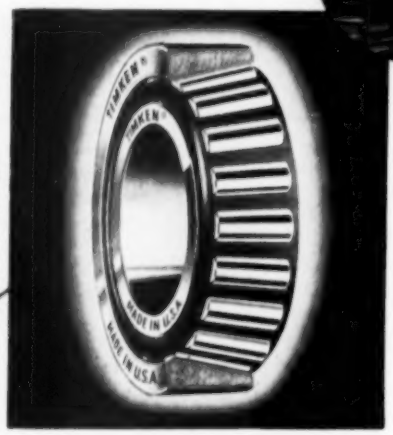
The Vibrapac now lubricates itself . . . at regular intervals . . while it is running. No more downtime for lubrication. No premature wear of insufficiently lubricated parts. And no over lubrication.



3

ANTI-FRICTION BEARINGS

The Vibrapac is completely equipped with anti-friction bearings. Pallet receiver shaft assembly, for example, has a 7½" diameter Timken Roller Bearing. Assures smooth, trouble-free operation and a lifetime of service.



4

2000 LBS. PRESSURE

VIBRATION is under pressure of 2000 pounds. Two 10 hp. high starting torque motors give undirectional vibration under this pressure.

For more than 50 years, block makers have looked to Besser for better block machines. Today's Vibrapac produces high quality block faster and with a minimum of downtime. The four illustrations above explain why the Vibrapac excels. They spell profits for block makers everywhere. The Vibrapac gives more . . . more power, more smoothness, more ruggedness, and, what every block maker is primarily interested in, greater production. No wonder the Vibrapac is universally regarded as the world's leading concrete block machine.

Plan now for increased production of quality block. Replace antiquated, cost-consuming machines with more dependable Vibrapacs. Your nearby Besser representative will gladly give you all the facts.

BESSER Company

World's Leading Manufacturer of Concrete Block Machinery

BOX 139, ALPENA, MICHIGAN, U.S.A.

NICHOLSON

(Continued from page 196)

testing; protecting one's good name; and seeing to it that our concrete is properly placed, finished and cured. We are also talking about such really important problems as sales efforts, pricing policies, advertising programs, customer dealings, community standing, labor relations, and, of course, adequacy of cement supply.

Proper handling of all labor problems is of great concern to every producer and to the ready-mixed concrete industry. A mistake made by one producer may hurt others in the business. Each new labor proposal must be thoroughly studied. Any demand lessening operational efficiency must be resisted. Management must zealously maintain necessary controls. New labor contracts must be skillfully negotiated. Employes' work must be carefully supervised. Work standards must be held at a high level. Incompetent, careless workers must be replaced. Production and deliveries must be efficiently handled.

The day of balancing increased labor costs by the use of bigger and bigger truck mixers is coming to an end. To maintain necessary profits, employes throughout the operation must perform more efficiently. Tomorrow's competition must be met by better performance. Good management will provide the necessary leadership.

Conclusion

Ours is a new, vital industry. In a short time, great strides have been made. The new federal highway program and other big scale construction planning present great opportunities and equally great challenges. For our industry to continue to move ahead, we must all work together. The National Ready Mixed Concrete Association and the various state associations are prepared to furnish the necessary leadership. We must also be prepared to work with association and company representatives of other industries. We are going to need our fair share of available materials, adequate supply of equipment and proper financing. The support and active cooperation of other industries are going to be most important.

Taking a good look at our industry, it all adds up to this:—one sees dedicated leadership, willing cooperation, necessary know-how, improved planning, aggressive management, and a faith in the future. In the field of ready-mixed concrete, the door of opportunity seems wide open. Properly sup-

(Continued on page 216)

(j) Putting away work at end of day is promptly and efficiently handled.
(k) Trucks and mixers with bad downtime records are eliminated from the fleet.
(l) All plant equipment is properly operated and maintained.
(m) Good housekeeping is evident at all plant operations.

7. Our company has good management leadership.

(a) Top management is interested, alert, aggressive and progressive.
(b) Management is directing an efficient low cost operation.
(c) Throughout operations, safety is constantly stressed.
(d) All drivers are regularly warned "Watch out for kids".
(e) Key employes effectively control all parts of the business.
(f) Key men aggressively attempt to keep abreast of industry developments.
(g) Employe performance at plant and on deliveries is carefully supervised.
(h) Operating routines are carefully set up, regularly checked and constantly improved.
(i) Authorities and responsibilities are clearly placed.
(j) Every effort is made to get a full day's work out of each employe.
(k) All phases of labor relations are efficiently handled.
(l) Proper relations are maintained with cement suppliers and other important sources of supply.
(m) Drivers are carefully selected, properly broken in, and regularly supervised.
(n) Qualifications of new drivers are determined before they have seniority protection.

8. Our company has proper checks over operating, maintenance costs.

(a) All operating phases of business are effectively controlled.
(b) Cost accounting program is properly geared to operations.
(c) Necessary breakdown figures are regularly and quickly available.
(d) Key employes are both cost conscious and efficiency minded.
(e) To effect cost savings, proper work standards have been developed.
(f) Importance of an efficient, low cost operation is constantly being driven home to all employes.
(g) Constant efforts are made to develop efficient, cost saving routines and methods.
(h) Our company keeps good cost records on each piece of equipment.

9. Our company has good customer and community relations.

(a) All employes cooperate to build good will.
(b) Cooperative drivers help contractors and other customers with job unloading and placing.
(c) Continuing effort is made to avoid every form of customer antagonism.

NEW MACHINERY

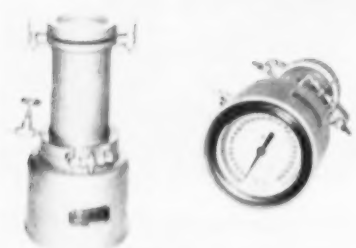
New Design Features in Mobile Crane

HYSTER CO., 2902 N. E. Clackamas St., Portland 8, Ore., is introducing a new mobile crane, Model KE Karry Krane, replacing Model KD. Suggested applications are for pipe, precast and prestressed concrete plants. Power steering as standard equipment, trunnion type steering wheels, short turning radius and rounded rear end design are incorporated for maneuverability in crowded storage areas. The Karry Krane has several optional boom lengths adjustable to six positions. A recessed bumper well permits handling of larger loads.

Boom lengths of 9, 10 and 12 ft. are available with optional counterweights. Either single-part hoist line, for capacities to 6,000 lb., or two-part hoist line, for capacities to 10,000 lb., are offered.

Enter 117 on Reader Card

Measures Volume by Air Displacement



D. BALLAUF MANUFACTURING CO. INC., 619-21 H. St. NW, Washington 1, D. C., is presenting the Volumeter, Model VM500A, an instrument for determining volumes of substances by air displacement. Either absolute volume or apparent volume may be measured. The instrument is intended for field or laboratory use and enables rapid determination of specific gravity, moisture content, density and other physical properties of materials.

The overall dimensions of the unit are approximately 7 in. outside dia. by 14½ in. high. Weight is 20 lb. The sample chamber dimensions are 3 in. inside dia. by 1 3/16 in. deep.

Another model, VM500B, is specially designed for testing densities of 4-in. dia. asphaltic concrete cover. The sample chamber of this unit measures 4 in. inside dia. by 6½ in. deep.

Enter 120 on Reader Card

Wet-Cutting Blade

EVEREADY BRIKSAW CO., 1509 S. Michigan Blvd., Dept. 536, Chicago 5, Ill., has introduced a new wet-cutting three-ply Tuffie abrasive blade for masonry cutting. Reinforced throughout with fiber glass, the blade has additional reinforcement on both sides, at the hub. It comes in a range of specifications for cutting all types of masonry materials. The 14-in. dia. blade is recommended by the company for use on all makes of wet-cutting masonry saws.

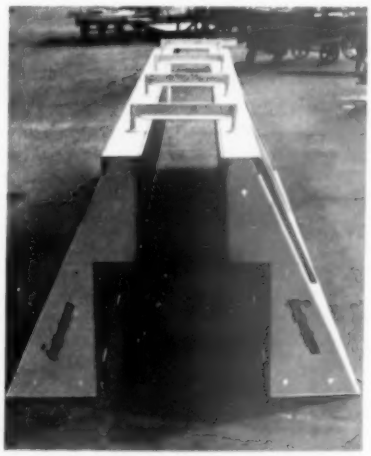
Enter 118 on Reader Card

Casting Form

FOOD MACHINERY AND CHEMICAL CORP., Lakeland, Fla., has introduced an "inverted T" concrete casting form as an addition to its Form Crete system of forms. The prestressed concrete member produced by the form is designed for use with double T members in building construction.

The forms are supplied in lengths of 10 ft. which can be connected to produce members of any required length. They are of lock-up type, with pilot liners available for various bottom slab thicknesses. The inverted T members are placed on supporting pillars across the width of the building in as many rows as are required at 60-ft. intervals. The double Ts are then placed perpendicularly with the ends supported by the wings of inverted Ts.

Advantages of the inverted T shape over the I beams which have been used for this purpose are said to be savings in space and greater stability. With the double Ts placed in the cutback portion of the inverted T it saves about a foot of space.



Enter 119 on Reader Card

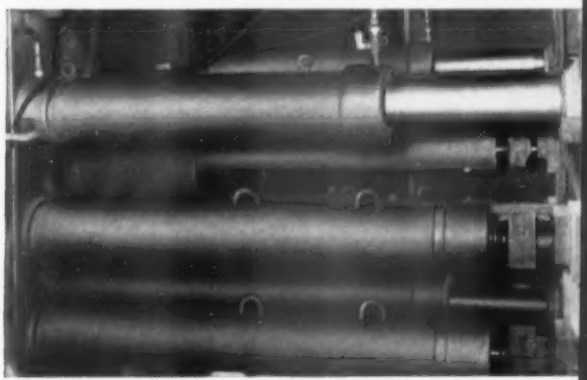
Truck Mixer

CONSTRUCTION MACHINERY CO., Waterloo, Iowa, has added Model 50 Transcrete to its line of truck mixers. The model has a drum volume of 243 cu. ft.; it carries a mixer rating of 5½ cu. yd., and as an agitator is rated to carry 6 to 6½ cu. yd. of concrete.

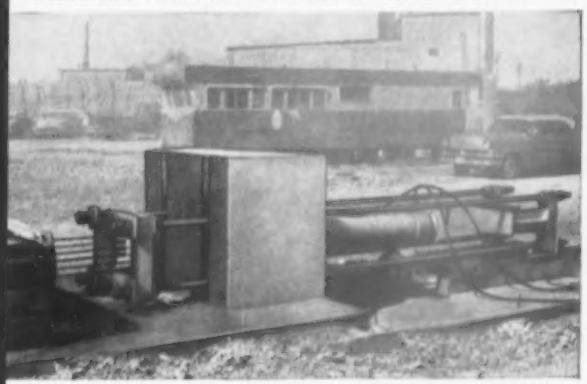
(Continued on page 202)

NORTH CAROLINA—North Carolina Products Corp., Raleigh, N. C.

CALIFORNIA—Rockwin Prestress Concrete Co., Norwalk, Calif.



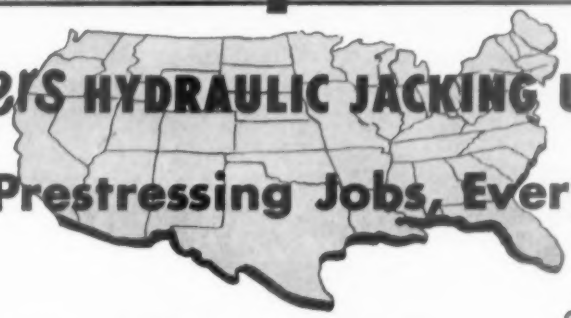
PENNSYLVANIA—Schuylkill Products, Inc., Cressona, Pa.



NEW YORK—Frontier Dolomite Concrete Products, Lockport, N. Y.

Rodgers HYDRAULIC JACKING UNITS

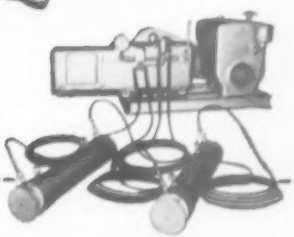
Best On Prestressing Jobs, Everywhere!



RODGERS Hydraulic Jacking Units used singly or in multiples of two, four or more provide "controlled pretensioning and detensioning" of steel strands.

Regardless of size or type of bed design—whether the jacking carriage is of rods with locking nuts or guided structural steel abutments with locking screws—Rodgers Jacks assure smooth, positive action. Accurate control of pump and jacks provides uniform pretensioning and detensioning to conform with exacting state and municipal specifications.

Prestressing units with any number of jacks are available with hand operated or power driven hydraulic pumps in capacities from 50 to 600 tons. Double-acting jacks are offered with ram travels of 30 or 48 inches. Single-acting jacks with ram travels of 6, 7½ or 13 inches.



For complete information on Prestressing Jacks and Pumps write for Rodgers Catalog 332

Rodgers Hydraulic Inc.

7451 Walker Street • Minneapolis 26, Minnesota

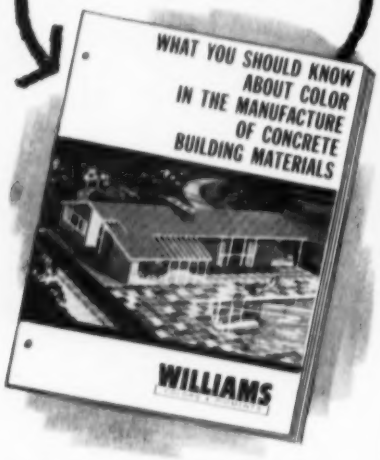
HI-PRESSURE Rodgers HYDRAULICS

EXPORT DIVISION
205 WEST WACKER DRIVE
CHICAGO 6, ILLINOIS, U. S. A.

Enter 1049 on Reader Card

Yours Free!

This new, authoritative 8-page booklet shows and tells you all about the use and application of color in the manufacture of concrete building products. Published as a service by C. K. Williams & Co., a leading producer of iron and chromium oxide pigments for over 75 years.



Special Feature

A special 4-page section contains 46 actual color chips which show you the many colorful effects you can obtain in finished concrete products through proper use of iron and chromium oxide pigments as made by Williams. You'll also find a special section devoted to specific concrete color recommendations, and a section on how to determine final color. You will come to depend on this booklet as a prime reference source for concrete color information. Don't miss sending for your free copy. The supply is limited, so mail coupon today.

WILLIAMS
COLORS & PIGMENTS

FILL IN AND MAIL

C. K. WILLIAMS & CO.
640 N. 13TH STREET DEPT. 15
EASTON, PENNSYLVANIA

Gentlemen:

Please send me ___ copies of your new booklet titled "What You Should Know About Color in the Manufacture of Concrete Building Products."

MY NAME_____

COMPANY_____

TITLE_____

ADDRESS_____

_____

(Please print clearly)

Enter 1116 on Reader Card

NEW MACHINERY

(Continued from page 200)

Model 550 is available with optional Ford or Chrysler separate engine power, and is offered also in the CMC truck engine drive. Features include floating drive, swing-out hopper and favorable center of gravity for load distribution and stability.

Enter 121 on Reader Card

Interlocking Block

THE LAUGER LOC-BLOC CORP., 1882 W. 22nd St., Erie, Penn., has developed an interlocking block with several new features. Production of these units is possible with a modified version of the blockmaker, manufactured by Kent Machine Co., Cuyahoga Falls, Ohio.

The block are designed so that they interlock on all four sides, providing strength and self-alignment.

Enter 122 on Reader Card

Outdoor Fork-Lift

CLARK EQUIPMENT CO., Industrial Truck Division, Battle Creek, Mich., is introducing an 8000-lb. capacity, pneumatic tire fork-lift truck, the Yardlift 8024. Power brakes, power steering and fingertip directional control are standard on the machine which is powered by a six-cylinder Continental gas engine of 209-cu. in. displacement. It has four speeds forward and reverse. The Clark "feather-action" spool-type valve with built-in pressure relief controls the hydraulic system and provides lift speeds of 48 f.p.m. empty and 42 f.p.m. loaded. The axle-mounted telescopic upright tilts 4 deg. forward and 12 deg. backward.

Enter 123 on Reader Card

Safety Feature

CHAMPION MANUFACTURING CO., 2028 Washington Ave., St. Louis 3, Mo., announces that the Cam Lock is standard equipment on all Champion Model R masonry saws. The Cam-Lock assures that the saw's cutting head will stay firmly locked in place.

Enter 124 on Reader Card

New Model Truck Mixer Introduced

CONCRETE TRANSPORT MIXER CO., 4985 Fyler Ave., St. Louis 9, Mo., has brought out its new 1957 Rocket, 4½- to 5-cu. yd. truck mixer. The machine is pictured mounted on a No. 10413 tandem Chevrolet. Standard equipment of the new rocket is the mechanical revolution counter which gives all the proper drum speed settings. Other standard features are the automatic hydraulic chute control and the aluminum detachable extension chute.

Enter 125 on Reader Card

(Continued on page 205)

CF&I offers
PRESTRESSED CONCRETE STRAND

In order to better serve the Western Construction industry, CF&I is now producing Prestressed Concrete Strand at its Pueblo, Colorado, Plant.

CF&I Prestressed Concrete Strand is manufactured to exacting specifications with quality control throughout the entire manufacturing process. The strand is stress-relieved *after stranding* which improves the elastic properties, the flexibility and ease of handling and guarantees more uniform physical properties. The strand has excellent bonding characteristics which make this an ideal material for pretensioned applications.

For complete details on CF&I Prestressed Concrete Strand... as well as CF&I Steel Products for other types of concrete reinforcement, write today to General Sales Office, The Colorado Fuel and Iron Corporation, Denver, Colorado.

CF&I **PRESTRESSED CONCRETE STRAND**
THE COLORADO FUEL AND IRON CORPORATION

Enter 1103 on Reader Card

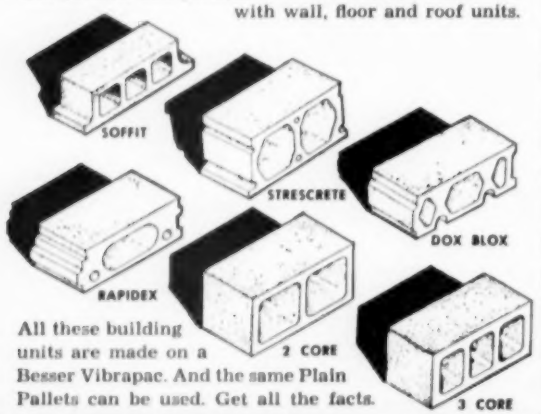
Go After the Entire Market!

Block for WALLS

Block for FLOORS

Block for ROOFS

Fire-safe walls? Of course! But floors and roofs should be fire-safe, too. Walls are full of openings (windows, doors, etc.), while floors and roofs are relatively solid. Actually, TWICE the volume of block is required for floors and roofs than is required for walls. So why not go after this profitable market? Supply customers with wall, floor and roof units.



All these building units are made on a Besser Vibrapac. And the same Plain Pallets can be used. Get all the facts.

Write for Bulletin

BESSER COMPANY

ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Block Plants

Enter 1096 on Reader Card

Walls, not block, make your reputation

You *make* concrete block, but is that what you *sell?* Is that what the ultimate customer buys when he purchases your product to build a house, a store, office, garage or factory?

No. He buys walls. He judges you and your product on the basis of how it performs as a wall—after the units have been laid. That's why your reputation depends on how well those walls serve, how well satisfied the customer is.

The first requirement for quality walls, of course, is quality block. That means complying with ASTM and Federal specifications for moisture content, strength and water absorption.

Yet quality block alone will not assure walls that give good performances. Quality construction is necessary too. For that reason farsighted concrete masonry manufacturers recommend only those contractors who can be depended on for quality concrete masonry construction.

In addition they make frequent inspections of construction on jobs where their units are being used. They know that quality walls are the best salesmen for additional jobs, the best insurance for continued success and future business.

PORTLAND CEMENT ASSOCIATION

33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

Enter 1097 on Reader Card

NEW MACHINERY

(Continued from page 202)

Portable Truck Mixer Plant

ERIE STRAYER CO., Geist Road, Erie, Penn., has developed the Port-O-Matic truck mixer plant, designed for quick setting up and taking down. The unit is made of four sections, either process taking from six to eight hours. Construction features include a wheel-mounted conveyor for easy movement; automatic weighing of materials; bin compartments in a 100-cu. yd. unit eliminating dual installation, and plug and socket type electric connections. No foundations are needed for the plant, which is said to have a 160-cu. yd. per hour capacity.

Enter 126 on Reader Card

Burial Vault Forms

THOMAS STEEL FORMS, 25257 W. Eight Mile Road, Detroit 19, Mich., announces steel pouring forms for concrete burial vaults which are claimed to provide ease of set up, pouring and stripping. The self-aligning, self-assembling forms are made of 11 gauge prime steel. To eliminate breakage of the finished product when stripping, the inside core of the deep bottom section is collapsible. An air activated valve or manual cam uniformly pulls the core side from the inside walls of the cured product. The four sides are hinged, and to reassemble, they are lifted into place and locked with "quick release" pins, one at each corner. The core sides are then realigned by air valve or manual cam.

The photograph shows how sides of the form are movable on hinges and the inside form core collapsed, as it is before stripping operation.

Enter 127 on Reader Card

END

"Our BANTAM averages 120 yds. per hr. loading sand and gravel from stockpile"

"Beats a bigger rig we own!"

Here's another case where the low-cost BANTAM outproduces a larger machine. Palmer Sand and Gravel Co. of Jackson, Mich., uses this BANTAM T-35 to load from scattered points around the pit. Equipped with ½-yd. rehandling bucket, the BANTAM loads a 5-yd. dump truck in 1½ to 2 minutes. With two 10-yd. trucks it loads out 450-500 yds. in less than 4 hours, averaging 120 yds. per hour! Commenting on performance, owner Ed Palmer says the BANTAM outstrips his bigger rig.

Regarding maintenance on BANTAMS, Ed Palmer says, "It just doesn't cost anything to run 'em." He now owns 3 BANTAMS—has been a user for 9 years. In all that time his only replacement cost has been one set of swing clutches and 3 sets of trunnion rollers. That's for all 3 machines!

If you're looking for big production at lower costs, look into the money-saving facts about BANTAMS right now. Use the handy coupon.

WORLD'S LARGEST PRODUCER OF
TRUCK CRANES AND EXCAVATORS

SCHIELD Bantam Co.

224 Park Street, Waverly, Iowa, U.S.A.

Please send details on BANTAMS for sand and gravel work with type of mounting checked below: RP-116

☐ Carrier ☐ Crawler ☐ Self-Propelled

Name .....

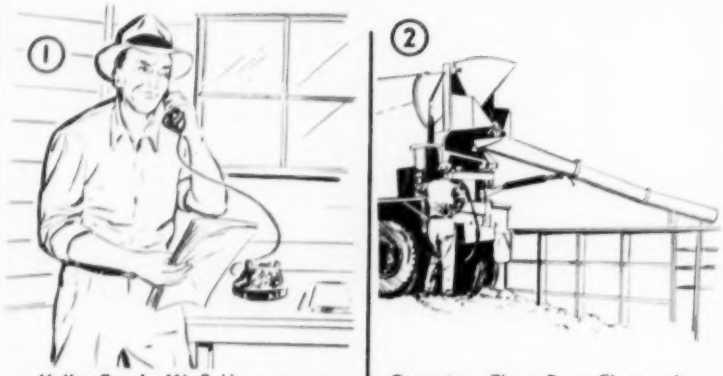
Company .....

Address .....

City ..... State .....

Enter 1117 on Reader Card

How to Win Contractors and Influence Profit!



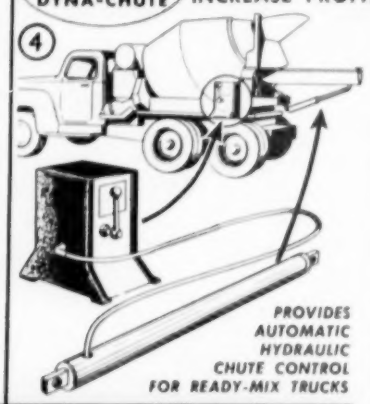
Hello, Ready-Mix? How soon can you start delivery? We've got to make up some lost time!

Operator: These Dyna-Chute units certainly speed deliveries — and I can handle the job all alone, too!

Good work, Pete, you're back early. That's the kind of service that keeps customers happy!

MONARCH DYNA-CHUTE

SAVE WORK
INCREASE PROFIT



PROVIDES AUTOMATIC HYDRAULIC CHUTE CONTROL FOR READY-MIX TRUCKS

SEND FOR FREE FOLDER

MONARCH ROAD MACHINERY CO.

1331A MICHIGAN ST., N.E. — GRAND RAPIDS 3, MICHIGAN

Enter 1033 on Reader Card

WHAT ARE YOU PAYING FOR REPAIRS?

The money you are paying to keep worn-out equipment working may be just enough for you to own better equipment.

See the **"WHERE TO BUY"** *Section*

PRESTRESSED CONCRETE

(Continued from page 177)

of the Daytona Beach plant are handed by the Leesburg plant. Max Cleland is manager of the Daytona Beach plant.

One of the most striking achievements of the firm, from a publicity standpoint, was a supply of 68-ft. roof slabs for the ground floor store structure of the Citrus Tower at Clermont, a Florida attraction on U. S. 27, which affords a view of a large area of Central Florida, the Atlantic Ocean and the Gulf of Mexico. The structure at the base of this tower includes 10,500 sq. ft. of prestressed slabs made with seven ⅜-in. strands. The slabs are 68 ft. long and provide a cantilever of 8 ft. in front of the building.

Both plants serve areas up to 100 miles from their home bases. Hauling to job sites is done by their own trucks supplemented by outside carriers when required.

J. Ashton Gray, who grew into the prestressing field from a ready-mix operation, heads all three of the companies that have been mentioned. Associated with him in Dura-Stress are W. L. Manly, vice-president and E. M. Merrill, secretary treasurer. James Stivender is plant superintendent of the Leesburg prestressing operation.

END

Masonry Logs Form Fireplace

NOTCHED MASONRY LOGS that fit together at the ends form the basis for a fireplace that can be assembled in a few hours and needs no mortar for construction. The logs are distributed by Michigan Certified Concrete Products, Inc., of Grand Rapids. Units, made of a lightweight aggregate, are cast in various sizes to form kits from which several styles of outdoor fireplaces can be built. The weight of the logs holds them together, and the notches make assembly easy. They are similar in design to the toy log sets children play with. The kit includes metal firebox fittings. Fences and retaining walls can also be built with the logs.

Block Firm Incorporates

THE NATIONAL BLOCK CO., Plymouth, Michigan, manufacturer of block and masonry supplies since 1947, and in the transit-mix business the last three years, has formed National Ready Mix Inc. New officers elected are George Eisenstein, president; Joseph Kovar, vice-president; Harry Valek, secretary and George Valek, treasurer.

NEW

Information* Valuable to the Masonry Industry

available now on

Stabilizing Walls with

DUR-O-WAL®

Request Yours TODAY!

*Technical data from independent laboratories on Dur-O-wal masonry reinforcement has just been compiled for you. Send for your free file today. Engineering Department T, Dur-O-wal, Cedar Rapids, Iowa.

Trussed Design
Butt Weld • Deformed Rods

DUR-O-WAL®

Rigid BACKBONE of STEEL
For Every Masonry Wall

Dur-O-wal Div., Cedar Rapids Block Co., **CEDAR RAPIDS, IA.** Dur-O-wal Prod., Inc., Box 628, **SYRACUSE, N.Y.** Dur-O-wal of Ill., 119 N. River St., **AURORA, ILL.** Dur-O-wal Prod. of Ala., Inc., Box 5446, **BIRMINGHAM, ALA.** Dur-O-wal Prod., Inc., 4500 E. Lombard St., **BALTIMORE, MD.** Dur-O-wal Div., Frontier Mfg. Co., Box 49, **PHOENIX, ARIZ.** Dur-O-wal, Inc., 165 Utah St., **TOLEDO, OHIO**

Enter 1048 on Reader Card

Drying chamber for concrete products with heating ducts (midway up the walls) equipped with adjustable slots on bottom sides to permit escape of hot air. Propane gas fired heating unit is located outside and to the rear of drying chamber

By ROBERT A. LATIMER

Here's an economical method of drying concrete block

RECENT SPECIFICATIONS by the Corps of Engineers and other federal agencies limited the moisture content of concrete block to 25 percent of total absorption. This action prompted the Smithwick Concrete Products of Portland, Ore., to make a careful analytical study of the most economical and effective means of bringing this about. Company engineers joined forces with the technicians of Gas Heat, Inc. of Portland and designed an installation using propane as fuel, which is said to be one of the most efficient and economical systems of its kind in the Northwest.

The drying chamber at the Smithwick company's plant is a room 34 ft. long, 12 ft. wide, and 8 ft. high, totally enclosed by insulating block capped with reinforced concrete. Two thousand 8 x 8 x 16-in. block, or 4000 partition units, may be dried at one time in this propane-fired kiln. Heat is thermostatically maintained at 500 deg. F. It is furnished by two Ransome burners capable of producing a total of 1 million B.t.u. Heat is evenly distributed throughout the stacks of block inside the dryer by a blower that turns at 2000 r.p.m. and completely changes air in the chamber every 50 sec. A return system takes the air back to the heating chamber, which is a cubicle compartment approximately 6 ft. on a side built onto the side of the kiln. Air is reheated here and recirculated into drying chamber.

Concrete block producers must exercise extreme caution so that block are not case-hardened during the drying process. When this happens the outside dries prematurely and the inner material never completely cures. This condition generally results from a drying atmosphere that is excessively hot and dry. Management relates that, during the initial operation of the new dryer, extreme care was taken to maintain the temperature at exactly the correct point. The company experimented with lower temperatures and worked up to 500 deg. F., which appeared to be the optimum. Liquefied gas heat proved simple to regulate and temperature remained constant.

With some types of block dryers using other fuels it is necessary to install humidifiers or use applications of steam to prevent too dry an atmosphere inside the drying chamber. Such practices have helped to prevent case-hardening. Smithwick has discovered that the moisture in the block in the products of combustion from the propane eliminates the need for special humidification devices.

Block remain in the drying chamber for approximately 12 hr., during which time their weight is reduced to 23 lb. each. Careful laboratory checks at the end of this time have shown that moisture content in the block ranges from 1 to 4 percent. That amount meets government specifications.

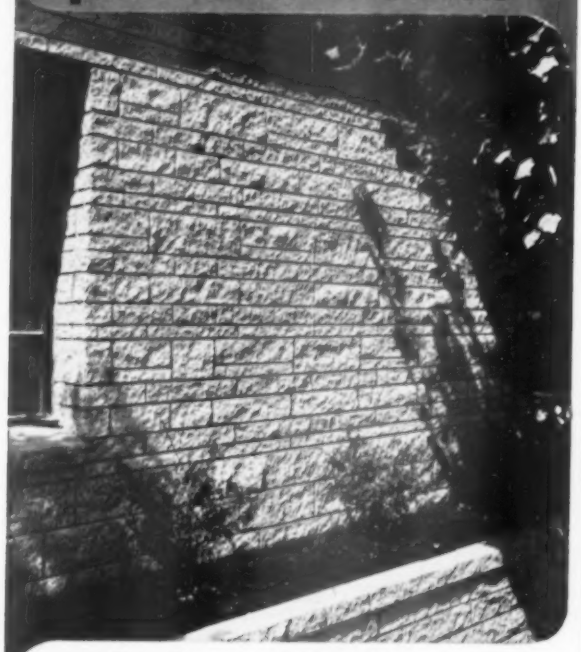
The Smithwick company has furnished dry block to many military installations built by the U.S. Corps of Engineers and a substantial number of buildings for the Atomic Energy Commission at the Hanford Project.

Items manufactured by the Smithwick company are numerous. The company makes almost anything that can be made from concrete. But its primary function is the manufacture of building block, prefabricated bases for small tanks and larger bases for propane tanks. The latter are known more popularly as "horse collars." The company has recently embarked in the field of precast concrete for roof slabs and other uses and is planning to enter the prestressed concrete field.

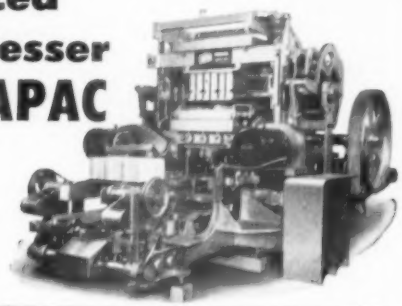
Haydite expanded shale aggregate is used as an aggregate because of its light weight, high strength, insulation and other qualities. Raw material is mined in the form of shale from the Smithwick quarry approximately 30 miles west of Portland. After crushing, material is transported by railroad cars to the plant in Portland, where it is processed. (See description in October, 1950 ROCK PRODUCTS.)

END

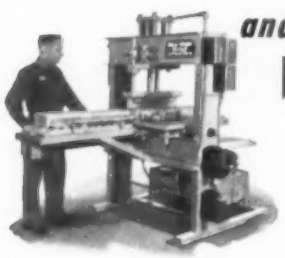
Give Customers Beautiful Split Block Like This—



made from Block produced on a Besser VIBRAPAC



and Split on a BES-STONE Block Splitter



Yes—split block *is* beautiful if it's made *right*, using a Besser Vibrapac and Bes-Stone Splitter—the combination that gives you NEW PROFIT OPPORTUNITIES plus SATISFIED CUSTOMERS. Get all the facts from your nearby Besser Representative, or write for literature to:

BESSER COMPANY
Complete Equipment for Concrete Block Plants
ALPENA, MICHIGAN, U.S.A.

Enter 1098 on Reader Card

A NEW NAME IN CONCRETE ADMIXTURES

MARACONS are admixtures for concrete that provide new and exceptional benefits so keenly desired . . . so urgently required . . . to meet existing needs of the concrete industry. MARACONS promote more complete hydration of cement particles . . . permit a substantial reduction in the unit water content without loss of plasticity or consistency of the mix. This means —

A. Lower Concrete Costs: —

1. Reduce cement required in a standard mix to give specified strengths.
2. Attain higher strengths without increasing cement content of a mix.
3. Maintain slump and workability at low W/C ratios.

B. More Durable Concrete: —

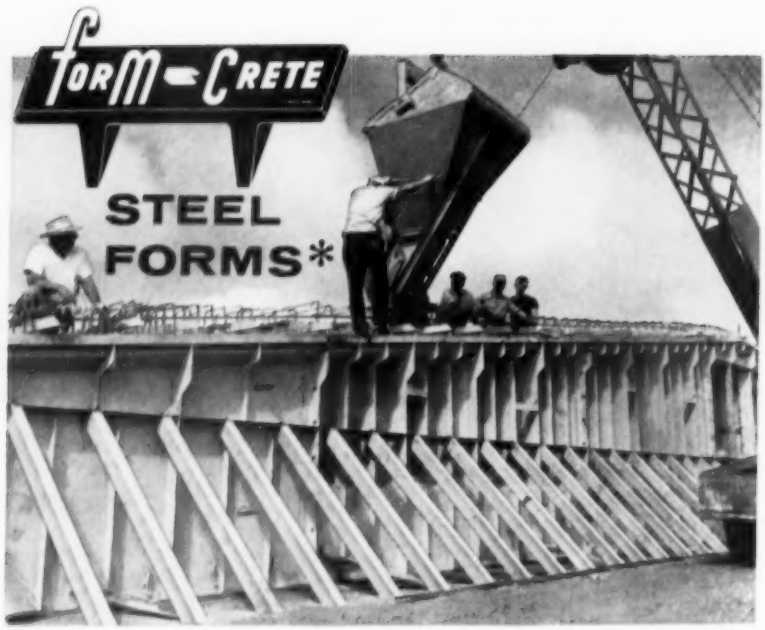
1. Minimize volume change in concrete before hardening, due to lower water content and more complete hydration of cement.
2. Achieve greater water-tightness and increased durability with respect to freezing and thawing.

The MARACONS also reduce water requirements in concrete mixes containing pozzolanic materials.

Write for File No. CP-57. You'll receive additional information including results of exhaustive independent laboratory tests and actual field experience.

MARATHON *Corporation*
CHEMICAL SALES DEPARTMENT
ROTHSCHILD • WISCONSIN

Enter 1099 on Reader Card



* specially designed to cast huge

PRESTRESSED CONCRETE ROOF GIRDERS

for **American Cyanamid's** new phosphate storage warehouse

Working closely with Prestressed Concrete, Inc., Florida Division's Form-Crete engineering staff supplied special mass-production steel casting side forms to produce prestressed concrete griders for supporting the roof of American Cyanamid's new triple phosphate storage plant at Brewster, Florida.

This is a typical example of the capability of our Form-Crete consultant service in supplying custom designed and fabricated steel forms to meet your requirements for specialized projects.

Important as this service is, our main objective is the supplying of skillfully designed and engineered steel poured-in place and semi-portable side forms for flat bed casting. Fabricated to order, there is a Form-Crete form for virtually every standard prestressed concrete product.

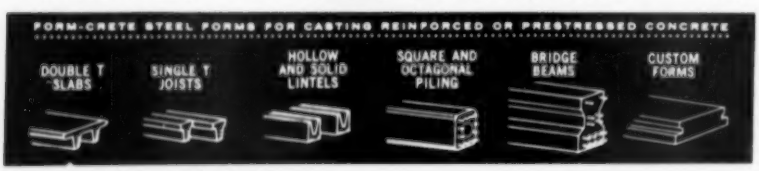
Investigate this highly profitable new market—the prestressed concrete product field with its unlimited applications . . . write, wire or phone today—get into the prestressed concrete business now with FORM-CRETE steel casting forms!

These girders are 101 ft. 6 in. long with a height of 12 ft. at the center tapering to 4 ft. at the ends. Top slab width is 3 ft. — weight 71 tons.

Send for
BULLETIN 200

fmc

FOOD MACHINERY
AND CHEMICAL CORPORATION
FLORIDA DIVISION
LAKELAND, FLORIDA



Enter 1118 on Reader Card

PIONEERING & PROSPERITY

(Continued from page 182)

block and stressed to 70 percent of the ultimate strength by two hand-operated 100-ton hydraulic jacks. The cores are then pressure grouted with a 1 to 2 mix using a Moyno grout gun. Finally the forms are covered with canvas and the gas heaters set to 140 deg. F. for 24 hours. The forms are stripped every day. Daily production averages 200 lin. ft. of multi-element beams.

The plant was designed and the equipment installed by Ross H. Bryan, consulting engineer of Nashville. P. H. Fanning, chief engineer of the Denie organization, collaborates with Mr. Bryan on design of structural members. Denie's are now installing a large prestress bed for manufacturing beams up to 54 in. deep and 100 ft. long capable of one million lb. anchorage. This bed will have two 300-ft. runs.

The prestressed T-beams and channel slabs for roofs and floors as well as the prestressed multi-element beams are delivered to the job site on Fruehauf tandem trailers. The largest channel slabs made in the plant are 50 ft. long. All these structural members are made to customers' specifications. Trained crews from the Denie plant are available to assist contractors in setting the prestressed members, and a 30-ton mobile crane of the American Hoist & Derrick Co. is used in erecting them. Both lightweight and sand and gravel concrete are used in prestress manufacture.

The Denie's Sons Company concrete block plant has a capacity of 13,000, 8 x 8 x 16-in. equivalents in an 8-hr. day. The block are cast on two Besser Model 3-M Vibrapacs with Stearns automatic pallet returns. Lightweight block represent about 60 percent of the production. Denilite is used as aggregate for both light and heavy block. The lightweight block are made with minus blend of ⅜ x ¼ x ¼ x O Denilite, portland cement and no sand. The heavy block are made with Wolf River sand, ⅜-in. Denilite and cement. Block are produced in modular sizes.

Sand and aggregates are stored in 300-ton, four-compartment Butler bins filled by a 286 ft. long, 24 in. wide Barber-Greene conveyor. There are three bins for aggregates and sand and one 420-bbl. bin for cement. A Butler traveling weigh batcher with Butler over and under beam scale indicator serves both block machines. Concrete is mixed in two Besser 50-cu. ft. mixers.

There are six curing kilns, 90 x 13 x 7 ft. high, with capacity for 72 block

(Continued on page 212)

Enter 1119 on Reader Card

Another LEADER in the Block Industry!

Unique Cubing Set-up Saves Manpower!
A standard Besser magnetic hoist is used for placing pallets holding cured units on a 50 ft. chain conveyor. As pallets move along conveyor, two men do the cubing. Pallets continue to end of conveyor, are automatically turned over and materials remaining on pallets drop into a small bucket conveyor which empties into a dump truck. Empty pallets proceed on underside of conveyor to the front where a hoist man picks up pallets with magnetic hoist and reloads to rack. Rack loaded with empty pallets is then returned to the Vibrapac. Formerly 6 men were required to do the work now done by 2 men.

Orco Operates Two Vibrapac Plants

Orco Block Company, Stanton, California, started in the block manufacturing business about ten years ago. Today, they operate two plants, one at Stanton and one at Santa Ana. Both plants are equipped with Besser Vibrapac machines.

With the ever-increasing demand for high-quality block, Orco wanted to step up their production and, at the same time, improve the quality of the block. Their Vibrapacs are doing both, efficiently and with steady, uninterrupted production.

Vibrapacs can do the same for you. Why not investigate their profit-making possibilities? Write for literature.

BESSER Company
BOX 135 • ALPENA, MICHIGAN, U. S. A.
First in Concrete Block Machines

Pete Muth and Arvid Johnson, owners of the Orco Block Company plants at Stanton and Santa Ana, California.

★This is the 137th of a series of ads featuring leaders of the Concrete Products Industry who are stepping up block production with Besser Vibrapac machines.

A 6-109

Aerial view of the Orco plant at Stanton, California, showing office building in left foreground. The Santa Ana plant is 15 miles east from Stanton.

Besser Vibrapac installed at the Stanton plant. Shows off-bearer removing block with power hoist.

PIONEERING & PROSPERITY

(Continued from page 201)

racks holding 60 standard block. Block are placed in the kilns with the doors open for a holding period of four hours. Then the steam is turned on for about six hours until it reaches the maximum temperature of 180 deg. F. After it is turned off, the block are allowed to soak in the wet steam for another six hours. Steam for curing is provided by a 100-hp. Cleaver-Brooks horizontal boiler.

The five Denie ready-mixed concrete plants are strategically located in areas where contemplated building projects indicate an active future demand for concrete. The sixty ready-mix trucks operated out of the five plants are principally 7-yd. Jaeger or Challenge and Worthington mixers on 10-wheel Mack trucks.

Plant No. 1 in South Memphis operates 15 trucks with 7-cu. yd. drums and two of 4½-yd. capacity. Elevated bins for cement storage include one that holds 1,200 bbl., one holding 420 bbl. and one 200 bbl. (the smaller bin has a slide gate; the other two have screw conveyors) plus two 1,000 bbl. and one 1,500 bbl. ground storage. These bins make three types of cement available: pretested cement, high early strength and type 1. Concrete is mixed in a 4½-yd. Smith tilting mixer. Hourly capacity of the plant is 90 cu. yd.

Facilities at Plant No. 2, adjoining the block plant at Frayser, are similar to the equipment at Plant No. 1, permitting the use of three types of cement. This plant operates a 4½-yd. Smith tilting mixer and has an hourly capacity of 75 cu. yd. Twelve trucks make deliveries. Eight of these trucks have 7-yd. drums; three are 4½-cu. yd. capacity.

Plant No. 3, in Millington, Tenn., 13 miles north of Memphis, has a three-compartment 150-ton bin for aggregates, a 420-bbl. elevated bin and a 750-bbl. ground bin for cement storage. Hourly capacity is 60 cu. yd. Three 7-yd. trucks make deliveries.

Plant No. 4 in the eastern part of Memphis, operates 18 trucks, all with 7-yd. drums. Aggregate is stored in a 350-ton, six-compartment bin. There are an elevated, two-compartment, 1,200-bbl. bin and a 4,000-bbl. ground storage bin for cement. Weight batcher, bins, cement tanks, elevators and all equipment were built in Memphis by the Wilson Steel Co. Hourly capacity is 90 cu. yd.

Plant No. 5 in Southwest Memphis is a transit-mix plant operating twelve 7-yd. trucks. This plant has a four-compartment Stanley bin, three compartments for aggregate and one holding 1,100 bbl. of cement. Hourly capacity is 90 cu. yd.

The combined facilities of the five plants could easily produce and deliver as much as 3,000 cu. yd. of ready-mix in a day, according to H. O. Pommer, vice-president for production. Denie ready-mix has been used in many notable projects, including 100,000 cu. yd. for the Memphis steam plant; 65,000 cu. yd. for the International Harvester warehouse and factory; 52,000 cu. yd. for the U. S. Army Memphis General Depot; 12,000 cu. yd. for the Baptist Hospital, Memphis; 8,000 cu. yd. for the Memphis Methodist Hospital; 6,000 cu. yd. for the underpass on U. S. Highway 78; 25,000 cu. yd. for the Memphis-Arkansas bridge approach; 12,000 cu. yd. for the Union Planters Bank building and 15,000 cu. yd. for the University of Tennessee Medical building.

About 20 percent of the ready-mix customers ask for air-entrained concrete. This is provided with Denie-Rich, an air-entraining agent the company says is approved by the U. S. Army Corps of Engineers.

Each of the five ready-mix plants is equipped to deliver concrete at a temperature of not less than 60 deg. F. to job site during the winter.

Face brick and pressed brick are made on a site close to the concrete block plant. The face brick plant has an annual capacity of five and one-half million brick. The pressed brick plant with three dry press machines produces ten million brick a year. The brick are burned in Harrop tunnel kilns, one 429 ft. long, the other 268 ft. long. These tunnel kilns are gas fired and automatically controlled.

The prestressing plant, the Denilite sintering machine, the block plant, the No. 2 ready-mix operation and the brick kilns are all located on a 190-acre tract of land a few miles north of the Memphis city limits. Water for these operations comes from a 485 ft. deep well. A Fairbanks-Morse vertical turbine pump mounted on an 8-in. casing furnishes water at the rate of 250 gpm.

Officers of John A. Denie's Sons Company include: M. A. Moss, president and general manager; Forrest C. Ladd, executive vice-president and assistant general manager: Henry O. Pommer, vice president in charge of operations on production; Stanley White, vice president and director of sales and Byron Bartholomew, treasurer and credit manager.

END

"STANDARD WEIGHERS"

Cardinal Scales

In Concrete Batching Plants

RELIABLE—DURABLE

Specify CARDINAL Suspension Hopper Scales for top efficiency in weighing cement and aggregates. Beam or dial type. Adaptable for all hoppers—can be installed to suit any requirement. Manual, semi-automatic or full automatic operation. Capacities: 500 lbs. to 100,000 lbs.

CARDINAL SCALE Installation

Photo courtesy of L. O. Funderburk, Jr., Mfg. Co., Camden, S.C.

Write Today For Information Dept. CP

Cardinal SCALE MFG. CO.

P. O. Box 28 — Webb City, Mo.

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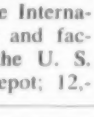
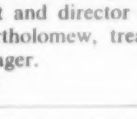
No Matter What SIZE...



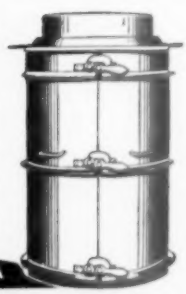
No Matter What SHAPE...



QUINN CONCRETE PIPE FORMS

Set The STANDARD For Producing Quality Pipe!

Over 50 years of experience go into the production of every Quinn Concrete Pipe Form. That's why the Quinn Heavy Duty form is recognized as the STANDARD the world over for producing quality concrete pipe at the lowest cost. Used in making pipe by vibration, spading, or tamping. Sizes for pipe 10" to 120" and larger. Tongue and groove (as shown) or bell end pipe in any length desired. No matter what size, shape, or length pipe you need, there's a Quinn pipe form made to fit your requirements. Write today for our FREE catalog and estimates.



Also Manufacturers of QUINN CONCRETE PIPE MACHINES

Quinn WIRE & IRON WORKS BOONE, IOWA

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BIGGER CAPACITY WITH LESS WEIGHT MEANS HIGHEST EFFICIENCY

It's the volume of concrete per pound of mixer weight that determines efficiency. That's why Whiteman Champion is economical to operate. Whiteman Champion mixers feature large diameter drums, produce a better mix in less time. All unnecessary weight has been eliminated to permit a bigger pay load.

Advanced engineering permits faster charging and discharging, easier operation. Simplicity of design and rugged construction reduce maintenance to a minimum.

Despite their many advantages, Whiteman Champions are priced low. Ten models from 3 to 6½ yards. Your Whiteman distributor will help you determine the model exactly suited for your particular needs. Call him or write today.

POWER TAKE-OFF available on certain models. Also, side-mounted and front-mounted engines.

Drum is extra large, made of heavy, abrasive-resistant steel. Special fins give better, more uniform mix.

Oversize, heat-treated track rollers run smoothly on Timken double-row, double-sealed roller bearings.

Long, folding, hydraulic-controlled discharge chute with extension is standard. Dynachute optional.

Positive pressure is assured by high-volume engine-driven pump. No pressure tank where leaks can cut supply.

Whiteman

THE LEADER IN CONCRETE EQUIPMENT

TRUCK MIXERS

POWER BUGGIES

VIBRATORS

SCREEDING MACHINES

FLOATING-FINISHING MACHINES

WHITEMAN MANUFACTURING CO.
13020 Pierce St., Pacoima, Calif.
Please send prices, catalogs and name of distributor for
☐ Power Buggies ☐ Screeding Machines ☐ Vibrators
☐ Floating-Finishing Machines ☐ Truck Mixers.

Name

Firm

Address

City Zone State

BLOCK MAKERS

(Continued from page 185)

size of your business justifies, and you are convinced that the audience which sees your TV commercial is large enough, the "shots" showing a concrete block home going up, or when finished, can be impressive. But something which satisfies your vanity is not necessarily the appeal which sells the best. Newspaper ads are often welcomed by readers, especially those on building pages. A commercial on radio or TV may be ignored or even actively resented.

If you have a list of people who are planning on building, it may be cheaper and more effective to write individual letters to them than to run an advertisement of equal size. Most people resent receiving form letters which are filled in with their names, and are bad excuses for personal answers.

For certain purposes, such as directing attention of motorists to a model house or to your plant, signboards do better than anything else.

2. Is the extra cost of color in newspaper advertising justified? If you have an important announcement of widespread interest, the extra cost of color may be profitable.

3. Should you advertise in small space, regularly, or use large space once in a while? Regular advertising usually pays off far better than intermittent attempts.

How can you prove to yourself that you are getting profitable results from your advertising? Effectiveness of an advertisement can be shown by offering a booklet, or a house plan. Be sure the booklet is worth writing for, and that your advertisement lets people know what they will get. Perhaps you'll want to charge for it, to keep out those who are really not good prospects. If two newspapers are being used, and you want to know which one brings the most results, "key" your ad.

A medium size company can use an advertising agency. The cost might run to around $10 per week, depending on the amount of work he is expected to do. He should be able to add to the pulling power of your advertising, and thus more than pay his way.

The smaller company can often get good results by talking to the advertising salesman of a newspaper or radio station, telling how much money will be available for a test; how much business is desired, etc. The salesman will not be able to give disinterested advice about the competition, but his services in writing copy, etc. will come without extra charge.

END

Reinforcing Handbook

CONCRETE REINFORCING STEEL INSTITUTE, 38 S. Dearborn St., Chicago, Ill., has brought out a revised edition of "CRSI Design Handbook". Designs are based upon the 1956 American Concrete Institute Reinforced Concrete Building Code. The handbook, available from the CRSI for $6.00, is said to simplify the process of designing reinforced concrete structures. Answers to stress and load problems are worked out in the manual and are read directly by reference to tables.

Mississippi Gets New Plants

W. H. DAY OF JACKSON, Mississippi, president of Jackson Ready-Mix Concrete, has announced plans for a lightweight aggregate plant to be built six miles northwest of Jackson and a multimillion dollar expansion of Jackson Ready-Mix, including establishment of six prestressing plants in key cities throughout the state. Construction has already begun on the aggregate plant.

T-14

On a Small Investment

You Can Become a Local Manufacturer of Concrete Drain Tile

With a Champion machine you can convert $21.50 worth of sand and cement into $80.00 worth of superfine concrete drain tile at small labor cost and overhead. And at $80.00 for a 1000 4" tile you are way below the price of ordinary clay tile. Results: a better product—lower prices—broader markets—and a generous mark-up for yourself. All due to the fact that local manufacturing eliminates the three big costs that burden clay tile — freight, middlemen's profits, and breakage. An opportunity in every community. Champion machine is compact, versatile, easy to operate. Get all the facts by writing at once for the Champion book.

W. E. DUNN MFG. CO.
528 W. 24th Street
Holland, Mich.
978 Dundas Highway, Cooksville, Ontario

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black?
blacker!
blackest!!!

WETTABLE LAMPBLACK No. 807

developed especially for producing
Deep Charcoal and Jet Blacks
in

Patio Stone — Split Block
Brick — Wall Cap

FRANK D. DAVIS COMPANY

"COLOR STANDARDS FOR THE CONCRETE INDUSTRY"

2704 Santa Fe Ave.
Los Angeles 58, Calif.

Meadow Road
Nixon, New Jersey

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SIDE-O-MATIC Preferred by the LEADERS

SIDE-O-MATIC through years of research is far beyond *imitators*, as expressed in the above testimonial letter.

SIDE-O-MATIC is the original boom-type unloader and is designed according to accepted and proven engineering practices.

Side-O-Matics are already helping THESE LEADERS IN THE INDUSTRY remain LEADERS.

Why not follow the leaders?

Investigate today!

Side-O-Matics are protected by Patent Numbers 2,772,794 and 2,772,795.

WRITE TODAY for full details. NO OBLIGATION.

CONNECTICUT
City Cement Block Co., Bridgeport—3 units
Empire Concrete Block Co., Bridgeport
The Plasticrete Corp., New Haven—2 units

FLORIDA
Meekins, Inc., Hollywood—4 units
Bes-Blac, Inc., Jacksonville—3 units
David Concrete Products Co., Jacksonville—2 units
Joseph M. Ripley, Inc., Jacksonville—3 units
Maule Industries, Inc., Miami—2 units
Hartstone Concrete Products Co., Inc., Tampa—2 units

GEORGIA
Baldwin Lumber Co., Cornelia

ILLINOIS
The Michigan Silo Co., Peoria—3 units
Peoria Concrete Construction Co., Peoria

INDIANA
South Hammond Concrete Products Co., Hammond
Carter's Concrete Block Plant, Monticello
M. L. Dague Co., Muncie

IOWA
Columbia Concrete Products Co., Des Moines
Iowa Concrete Block and Material Co., Des Moines

KENTUCKY
Carl Krebs, Fort Thomas

MASSACHUSETTS
Adolf Jandris and Sons, Inc., Gardner
Massachusetts Cement Block Co., Medford—2 units

MICHIGAN
Brighton Cement Block Co., Brighton
Atlas Concrete Products, Inc., Flint—2 units
Foster Builders Supply Co., Port Huron
Port Huron Building Supply Co., Port Huron
Tait Block and Supply Co., Port Huron
Daggett's Concrete Products, South Haven

NEBRASKA
Pick's Pack Hauler, Blue Hill

NEW JERSEY
Faber Cement Block Co., Inc., Paramus—3 units
A. and J. Limone, Teaneck
Raymond W. Bartlett, West Creek

NEW YORK
Putnam Mason Supplies, Inc., Carmel
Picone Brothers of Suffolk, Inc., Farmingdale, Long Island
Alfco Concrete Products Co., Inc., Patchogue, Long Island—2 units
Fairview Block Co., Inc., Poughkeepsie
Hudson Valley Block Co., Inc., Poughkeepsie
Domine Builders Supply Corp., Rochester
Flower City Builders Supply Corp., Rochester
Schenectady Cast Stone Co., Inc., Schenectady—2 units

NORTH DAKOTA
Borsheim Builders Supply, Inc., Williston

OHIO
The Fairlawn Supply and Coal Co., Akron
Meyers Brothers Trucking, Akron
Pigott Trucking, Akron
Bastone Inc., Chardon—3 units
The Apex Coal and Supply Co., Cleveland—2 units
The Cleveland Builders Supply Co. Cleveland—3 units
The Ideal Builders Supply and Fuel Co., Cleveland—2 units
Jethro Robinson, Cleveland
The Zone Coal and Supply Company, Cleveland—2 units
Concrete Masonry Corp., Elyria—6 units
Mattox Brothers, Inc., Lancaster
Allen County Concrete Products, Inc., Lima
Lima Cement Products, Inc., Lima
National Cement Products Co., Toledo—2 units
Tom Edwards Trucking Co., Toledo

PENNSYLVANIA
Lehigh Building Block Co., Allentown
Nitterhouse Concrete Products, Chambersburg
Fizzano Brothers, Crum Lynne
Binkley and Ober, Inc., East Petersburg—2 units
Gorr Block and Supply, Greenock
Jeannette Concrete Block Co., Jeannette
New Castle Duntile Co., New Castle
R. I. Lampus Co., Springdale

RHODE ISLAND
Park Avenue Cement Block Co., Inc., Cranston—2 units

WISCONSIN
Polyack Brothers, Zenda

CANADA
Twin City Dunbrick Co., Ltd., Eastview, Ont.
Frazer Duntile Co., Ltd., Ottawa, Ont.—2 units

SIDE-O-MATIC UNLOADER CORP.

P. O. BOX 1561 • YORK, PENNSYLVANIA • TELEPHONE YORK 7357

Enter 1144 on Reader Card

NICHOLSON

(Continued from page 199)

ported by other industries (cement, aggregate, equipment and banking) and led by men who have their hands securely on the throttle, the ready-mixed industry seems destined to move ahead into greater fields of accomplishment.

It is hoped that the contents of these articles have given ready-mix producers a real chance to take a good look at themselves, at their material supply, plant operations, delivery fleet, operating personnel, selling efforts, market problems and front office administration.

In winding up this series of articles, the check list is set forth in the hope that each producer will make an effort to "rate" the efficiency of his own operations.

END

CHECK LIST RATING

Over 1100 is outstanding
950 to 1100 is good
800 to 950 is fair
Under 800 is poor

(d) All customer complaints are given prompt, careful attention. _____
(e) Key customers are given service preference. _____
(f) Field representatives work continually to promote better employe-customer relations. _____
(g) Importance of good customer relations is constantly stressed throughout the entire organization. _____
(h) Key men participate actively in industry and community affairs. _____

10. Our company has its eye on the future.

(a) Proper arrangements have been made for an adequate supply of cement. _____
(b) Laborwise, company is in good operating position. _____
(c) We keep abreast of new developments in the industry. _____
(d) Each year we try to substantially improve overall operations. _____
(e) Every effort is made to gain customer confidence. _____
(f) Proper controls have been placed over all phases of the business. _____
(g) Expansion programs are carefully conceived and carried out. _____
(h) Continued good management is encouraged through proper incentive planning. _____
(i) Company executives willingly serve industry and community. _____
(j) Financial structure of company is sound. _____
TOTAL _____

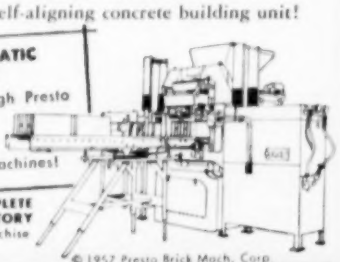
Build it BETTER! Build it FASTER!

with...

PRESTO BLOCK

Now you can build with true air-cavity construction featuring every wanted quality of fire protection, long life, superior sound, temperature and moisture insulation... all in one easy-to-lay-up, self-aligning concrete building unit!

LOW COST AUTOMATIC PRODUCTION!
of either 8 or 12-in. high Presto Blocks on electronically controlled, hydraulically operated Presto Block Machines!



GET THE COMPLETE PRESTO BLOCK STORY
and information regarding franchise manufacturing arrangements, write, wire or phone:

© 1957 Presto Brick Mach. Corp.

PRESTO BRICK MACHINE CORPORATION
Empire State Bldg., New York, N. Y. • Pennsylvania 6-1353

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K & R

AIR POWERED CUTTERS
SPEED UP PRODUCTION
Reduce cutting costs 50%.
Cut Pipe Mesh, Reinforcement Bars, Rods & Bolts.
High Speed, Light Weight, Portable.
5/16" to 9/16" Head Capacity.
Price range $140. to $200.
Write for literature.
K&R AIR POWERED EQUIPMENT CO.
CANTON, SOUTH DAKOTA

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CONCRETE BURIAL VAULTS

AMERICA'S FINEST MOLDS AND LOWERING DEVICES

BERG VAULT SYSTEM

TERRITORY FRANCHISES
BERG VAULT CO.
EQUIPMENT DIVISION
1620 LUCAS HUNT RD. ST. LOUIS 20, MO.

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BONDED EQUIPMENT BARGAINS

NEW CURRENT MODELS IMMEDIATE SHIPMENT FROM OUR FACTORY - WRITE, WIRE OR PHONE

NEW BONDED® HEAVY DUTY VIBRATING SCREENS

HEAVY DUTY MODELS, TYPE BS: Four bearing positive throw eccentric shafts; 3' x 6' to 5' x 14', 1 to 5 decks. Write for New 8-page Bulletin No. 1087.

Model Number	No. of Decks	Screening Area	Sale Price
124AS	1	2' x 4'	$ 443
224AS	2	2' x 4'	472
126AS	1	2' x 6'	472
226AS	2	2' x 6'	501
136AS	1	3' x 6'	581
236AS	2	3' x 6'	688
336AS	3	3' x 6'	956
138AS	1	3' x 8'	675
238AS	2	3' x 8'	815
338AS	3	3' x 8'	996
3 6HS	3	3' x 6'	1303
436HS	4	3' x 6'	1447
138HS	1	3 x 8'	1231
238HS	2	3 x 8'	1282
338HS	3	3 x 8'	1375
248BS	2	4' x 8'	1865
348BS	3	4' x 8'	2035
2410BS	2	4' x 10'	1953
3410BS	3	4' x 10'	2305
2412BS	2	4' x 12'	2319
3412BS	3	4' x 12'	2635
4412BS	4	4' x 12'	2833

NEW BONDED® GENERAL DUTY VIBRATING SCREENS

GENERAL DUTY SCREENS, TYPE AS: Eccentric weight mechanism, spring mounted, 1 to 3 decks, 2' x 4' to 3' x 8'. Write for New 8-page Bulletin No. 1086.

For mineral, chemical and other industrial products. Fast, efficient and economical for cleaning, sizing, grading, dewatering. Made in all metals, including stainless steel. Enclosed models for hot materials or dust control. Bonded screens are built for any screening operation, wet or dry.

NEW BONDED® TROUGHING IDLER CONVEYOR BARGAINS

Complete Ready-Fab sections quickly and easily jointed together on the job. We take our loss on our stock of short length belting. You can save as much as 50% on the BONDED CONVEYOR SPECIALS listed, with conveyor belting in two pieces. Conveyors are equipped with 5" roll diam. idlers and return rolls, 20" diam. head pulley and 16" diam. tail pulley mounted on 2¼" or 2½" diam. shaft. Belt is new 4-ply, 28-oz. duck, 1/8" top rubber cover x 1/32" bottom cover and is fresh stock made by leading manufacturers.

Belt Width	Length of Conveyor	List Price	Sale Price
14"	25'	$1397	$ 722
14"	50'	2222	1144
14"	85'	3377	1733
16"	20'	1262	636
16"	45'	2137	1088
16"	60'	2662	1359
16"	90'	3712	1900
18"	25'	1477	794
18"	45'	2217	1166
18"	70'	3142	1648
18"	85'	3697	1933
18"	100'	4252	2220
18"	130'	5362	2797
20"	25'	1517	828
20"	60'	2882	1533
20"	75'	3467	1838
20"	90'	4052	2145
24"	25'	1590	898
24"	45'	2430	1330
24"	70'	3480	1875
24"	100'	4740	2514
24"	120'	5580	2950
24"	150'	6840	3603
30"	50'	2911	1617
30"	70'	3871	2119
30"	90'	4831	2614
36"	25'	1818	1118
36"	45	2858	1678
36"	60'	3638	2096
36"	100'	5718	3214

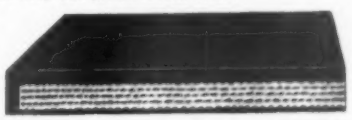
For conveyors longer or shorter than those listed above, add or deduct the following per foot prices according to belt width. Prices include belting. Write For Bull. #1138.

For 14" belt	$16.84 per foot
For 16" belt	18.04 per foot
For 18" belt	19.24 per foot
For 20" belt	20.37 per foot
For 24" belt	21.78 per foot
For 30" belt	24.75 per foot
For 36" belt	27.95 per foot

Bonded troughing idler conveyors are also available with truss type construction. Write for descriptive information and prices.

NEW CONVEYOR BELTING SAVE UP TO 25%

Heavy duty 4-ply, 28 oz. duck 1/8" top rubber cover by 1/32" bottom cover 12# to 15# average friction pull; 800# to 1000# average cover tensile rubber belting having high tensile strength, tough cotton duck, strong carcass and proper flexibility. For heavy boxes, bags and bulk materials. Troughs easily. Famous brands at deep cut prices. Fresh stock.



Width	Ply	List Price	Sale Price
14"	4	$3.52 foot	$2.83 foot
16"	4	3.96 foot	2.97 foot
18"	4	4.38 foot	3.29 foot
20"	4	4.83 foot	3.80 foot
24"	4	5.68 foot	4.26 foot
30"	4	6.97 foot	5.21 foot
36"	4	8.26 foot	6.18 foot

A high grade of heavy duty 4 and 5-ply, 28 oz. duck, 1/8" top rubber cover x 1/32" bottom rubber cover, 16# to 19# average friction pull, 2500# to 3000# average cover tensile belting. This belt is for more severe service, high tonnages and abrasion resistance. For handling stone, mineral ores, concrete, cement, coal and other similar materials, both wet and dry. Belt has molded rubber edge.

Width	Ply	List Price	Sale Price
16"	4	$4.71 foot	$3.46 foot
18"	4	5.23 foot	3.83 foot
20"	4	5.73 foot	4.37 foot
24"	4	6.74 foot	4.94 foot
30"	4	8.28 foot	6.07 foot
24"	5	7.90 foot	5.78 foot

The following belts are 5-ply, 32 oz. duck:

Width	Top Cover	Bottom Cover	List Price	Sale Price
24"	1/8"	1/32"	$ 8.56 Ft.	$ 6.42 Ft.
30"	1/8"	1/32"	10.52 Ft.	7.89 Ft.
36"	3/16"	1/32"	14.21 Ft.	10.66 Ft.

A heavier duty 28 oz. duck belt with 1/8" top rubber cover x 1/32" bottom rubber cover having 3500# to 4000# average cover tensile, 20# to 24# average friction pull. For the higher abrasion resistance applications and handling of materials where more strength is required to give greater belt life.

Width	Ply	List Price	Sale Price
18"	4	$5.67 foot	$4.20 foot
20"	4	6.22 foot	4.61 foot
24"	4	7.32 foot	5.41 foot
24"	5	8.53 foot	6.31 foot

Other widths, plies, duck weights and cover thicknesses available at low prices. Write for Free Sample.

NEW IDLERS AND RETURN ROLLS 25% BELOW LIST PRICE

3-roll, 5" diameter Troughing Idlers for:

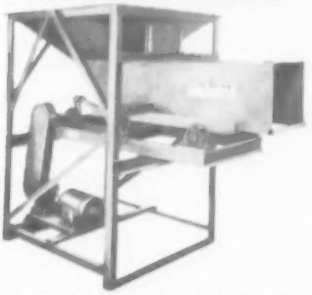
14" belt	$18.50	24" belt	$21.25
16" belt	19.25	30" belt	22.00
18" belt	20.50	36" belt	22.75
20" belt	20.75	48" belt	25.50

1-roll, 5" diameter Return Idlers for:

14" belt	$7.25	24" belt	$ 8.50
16" belt	7.50	30" belt	9.50
18" belt	8.00	36" belt	10.00
20" belt	8.25	48" belt	11.50

All steel. Interchangeable with other well-known makes. Furnished with easily replaceable prelubricated Sealed ball bearings. Also can be furnished with greasable type Alemite Fitted bearings at slight additional cost. Maintenance is negligible. Bonded Rubber Disc Impact Idlers priced from $61.00. Write For Bulletin #1138.

NEW BONDED® FEEDERS



Bonded HDF-18 Heavy Duty Feeders were especially designed for abrasive materials such as Ore, Rock, Crushed Stone, Gravel, Sand, Clinkers, Abrasive Volcanic Ash and Rock. Abrasion Resistant Alloy Steel Plate is used for all parts that contact the material. Feeders are process control instruments as well as material movers and help to prevent screens, crushers, grinders, etc., from being run empty, choke fed, or overloaded. Capacities to 250 TPH. Write for Bulletin #1182. **Priced from $595.00**

NEW BONDED BUCKET ELEVATORS

Bonded makes Open or Enclosed, Vertical or Inclined Bucket Elevators with continuous or spaced buckets mounted on chain or belting. They are recommended for small to medium size lumps, fine abrasive material such as dry sand, coke breeze, wet slag and many other bulk materials. Because of the wide variety of sizes and types, prices will be quoted on request. Write for Bulletin #1047.

BONDED SCALE AND MACHINE COMPANY

PHONE Days: Hickory 4-2186 — WRITE FOR FREE CATALOG AND PRICES — PHONE Evenings: AX. 1-2213, HU 6-3156

2185 S. THIRD ST. — Mfrs. of Scales, Conveyors, Conveyor Parts, Idlers, Vibrating Screens, Crushers and Feeders — COLUMBUS 7, OHIO

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Vibro-Tables & Metal Molds

PARK BENCHES

SPLASH-BLOCKS LAWN TRIM
WINDOW-WELLS DIST. BOXES
STEPPING STONES WALL CAP
PICNIC TABLES STEP TREADS

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TESTERS

For

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CYLINDERS
CUBES
BEAMS
LINTELS
PIPE AND SLABS

If it's a concrete tester you need—get in touch with

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TESTER DIVISION
P. O. BOX 310 · NEW CASTLE, PA.

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- The Standard of Comparison for Nearly Forty Years
- 65 Shades to Choose From Including Many New Colors

Send For Latest *COLOR CARD*, Samples, Technical Brochure, and Quotations.

SMITH CHEMICAL & COLOR CO.
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CONCRETE BRICK COLORS
CEMENT COLORS
MORTAR COLORS
made by
BLUE RIDGE TALC CO., INC.
Henry, Virginia

FOR SALE

EIGHT JAEGAR 5½ yard concrete mixers currently in service. Recent vintage. Includes three units with power tower drive.

MARION DISTRIBUTING COMPANY

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SWAP—SELL—BUY
Block Machines

Stearns #7 & 9 Joltcretes $500.00 each
(Joltcrete owners at this price buy one for spare parts.)
Mold Boxes #7 & 9 $150.00 each
2—Stearns 12 cu. ft. mixers. Excellent condition $450.00 each
1—Y-40 Truckman Fork-Lift 4000 lbs. capacity 1956 Model $3500.00
1—25 cu. yd. Single Bin Hopper $1500.00
2—Air Offbearers Stearns #7 & 9 $250.00 each
2—Hand Lift Trucks $175.00 each
2—Stearns Stripper Clipper Machines $350.00 each
1—Hyster 40 Lift Truck 4000 lb. capacity. Like new $1950.00
100—Racks for cored steel pallets $10.00 each
100,000 pressed steel pallets in stock
(Send tracing or sample for quotation).

WRITE—WIRE—PHONE
Mr. McCaughey

Send in list of equipment you need. If we don't have it in stock, we usually know where we can find it at a bargain.

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Route 130 Thorofare, N.J.
Phone Tilden 5-5400

PLAIN STEEL PALLETS

FLAT • SQUARE • ACCURATE

GUARANTEED QUALITY

J & S STEEL CORPORATION
4415 W. Fillmore St., Chicago 24, Ill.
VAn Buren 6-9000

WORLDS BEST Stripping Splash Block Molds 2½"x11½"x36"

F. H. A. Approved Mold Made out of deep drawn 16 gauge steel $16.00 each in lots of 10 or more $12.95 F.O.B.

Send for Free Bulletin on many other High Profit Low Cost Molds.

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MODERN BLOCK PLANT

Complete modern, high-speed block plant in growing west coast city of 70,000 pop. Includes Besser 3-block machine with daily capy. 7,000 block; rail facilities; elevated steel storage bins for cement and aggregate; paved yard; warehouse; modern office building. All in excellent condition. Address inquiries to:

BOX P-24, CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

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1—BERGEN FRONT END PALLET RETURN
1—OFF BEARER HOIST, WITH MAGNET
ALL ITEMS IN GOOD AS NEW CONDITION

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FOR SALE

One (1) Link-Belt Heavy Duty Elevator, All Metal, Totally Enclosed. 10" Buckets, on chain with head and tail pulleys. 35' center to center.
Good Condition, Loaded for $575.00.
Write or Call
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P.O. Box 336, Phone 96, Scottsboro, Ala.

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BUILD GOOD WILL

Advertising necessities for the block industry. Line Pins, Twigs, Corner Blocks, Calculators. Complete catalog on request.

GERSON CO. 82 Deering Rd.
MATTAPAN 26, MASS.

FOR SALE

One new Anthony, 28 cubic ft., Continuous Mixer. Still in original crate. $1600.00. Guaranteed.

FLEMING MANUFACTURING CO.
Cuba, Missouri

LIGHTWEIGHT AGGREGATE PLANTS

DESIGNED ENGINEERED ERECTED

SINTERING LABORATORY SERVICE

BY

HANSON-MOODY ENGINEERING COMPANY

WM. HANSON, SR., 1019 W. Wooster Ave., Dover, Ohio

GUY D. MOODY, 1011 Chester St., Bristol, Va.

unbreakable
PALLET RINGS

Write for full information

TEXAS FOUNDRIES
LUFKIN, TEXAS

NEW SEPTIC TANKS

Steel Forms

Makes One Piece Tank

536 Gal.—3 x 6 x 5
750 Gal.—3½ x 7 x 5

(TWO FORMS IN ONE)

EASY CHANGE OVER • FAST STRIPPING

Write for Literature

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GOOD WILL BUILDERS

Your contractor and bricklayer customers will be able to do quicker, easier, straighter work with UB Tools . . . tools that carry YOUR OWN COMPANY ADVERTISING. Linestretchers, Corner Ties, Line Pins, Twigs, Concrete Calculators. We also wholesale a complete line of Blocklayers' Tools. Write for literature and prices.

UNITED BUILDERS
1822 Lindberg Dr., Muskegon, Mich.

PLAIN STEEL PALLETS

made accurately
to
your specifications

THE REGENT STEEL CO.
2361 East 80th St., Cleveland 27, Ohio
Tel.—VUlcan 3-8500

SIZE	PALLETS	JACKETS	LENGTH	TYPE
8"	201	2	4'	T&G
10"	144	2	5'	BAS
10"	190	2	4'	T&G
12"	195	2	4'	T&G
15"	152	2	4'	T&G
18"	155	2	4'	T&G
24"	130	2	4'	T&G

Address Replies to Box P-22, Concrete Products
79 W. Monroe St., Chicago 3, Ill.

Pallets
Racks
Lift Trucks
Block
Machinery

WITTEMANN MACHINERY COMPANY

FARMINGDALE, NEW JERSEY

Specialists in Concrete Products Equipment

Eastern Representatives of the

COLUMBIA MACHINE WORKS, Vancouver, Washington

Elevators
Bins
Conveyors
Feeders
Mixers

CONCRETE BLOCK MACHINE

FACTORY RECONDITIONED

FMC-180, plain pallet block machine, guaranteed. Comes complete with motors, and mold box. Capacity 1400 blocks daily. $2750.00. Financing available.

FLEMING MANUFACTURING CO.
Cuba, Missouri

FOR SALE

One New Monarch Heavy duty stave machine with Anchor tamper, 400 wood steel covered stave pallets, 16 steel stave racks, Gas powered Truck-man lift truck, Steel Silo staging, 4" center pole, adjustable for 10 to 16' silos, Howe Electric stave Hoist with motor and cable. 1—ratchet chain hoist, 1—30 HP, return flue low pressure boiler in good condition, with stoker, condenser pump and water control, Several Air Cylinders 2 to 8" bore 11 to 23" stroke, Some special control, Clam and sol. Air valves, one each mold box and head for Lith-I Bar 3 block machine, 4-8 and 12" Blocks.

Galien Concrete Tile Company
P.O. Box 276, Galien, Michigan
PHONE L.I. 5-2262

FOR SALE

1 Besser Vibrapac complete with magnetic offbearer and pallet return.

1,000 Plain Pallets 18½ x 26 x 5/16

4", 12", 8", Mold Boxes

50 Steel Racks. 72 Block capacity

1 Hyster Fork truck 6,000 lbs. capacity.

1 Yale electric platform truck with charger, 4,000 capacity.

1 Scoopmobile front end loader 1 yd. capacity.

CALN BLOCK COMPANY
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GO—CORP KING—INCLUDING 4" and 8" MOLDS. IN GOOD CONDITION

MID ATLANTIC EQUIPMENT RESALE CO.
P.O. Box 273, Front Royal, Va.

Pallet Cleaning Service

at your yard

18" x 18" or 18½" x 26"

L. D. MOORE
2361 Custer Ave., Phone 2-4693, Ogden, Utah

FOR SALE

One 25 cu. ft. Besser Mixer with 25 HP—1200 RPM 220 Volt Motor. Flat belts, counter shaft and two pulleys included.

$600.00 F. O. B. our plant

Watkins Concrete Block Co., Inc.
4215 "R" Street, Omaha 7, Nebr.

MECHANIC FOR CONCRETE PRODUCTS PLANT IN METROPOLITAN AREA TO TAKE CHARGE OF MAINTENANCE OF EQUIPMENT, GASOLINE MOTORS, OVERHEAD CRANES, LIFT TRUCKS, ETC.

BOX P-31, CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

Ready-Mix Concrete Manager seeks position in South Far West. 6 years experience in design, production, and operation. Present salary in 5 figures.

BOX P-27, CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

HELP WANTED

Foreman for concrete block plant, experienced on Fleming 180 or that type machines and plant size. Must be able to weld and do work himself. Have plans for large Stearns machine installation at a later date. Give all particulars as to experience and salary expected in first letter.

BOX P-28, CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

WANTED

COMPLETE CONCRETE PIPE PLANT
GIVE TYPE MODEL OF MACHINE
SIZE OF PROPERTY AND PLANT

BOX P-29, CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

SALES ENGINEERS FOR EXPANDING SALES coverage of latex admix for concrete, terrazzo, plaster, stucco, etc., for durability, water and weather-proofing, resiliance, etc. Should serve architects, builders, contractors, etc. Must have construction background. Product already sold nationally and internationally. Straight commission, protected territory, volume line.

SURCO INTERNATIONAL CORPORATION
1399 Peachtree St. N. E. Atlanta 9, Ga.

EQUIPMENT SUPERVISOR

Wanted by large block, concrete products and ready mix concrete firm an experienced supervisor to take charge of complete shop for repair and maintenance of plant equipment and trucks. Knowledge of gas and diesel engines essential. Located in central New Jersey. Salary open. Write giving complete experience. Reply confidential.

Box P-23, CONCRETE PRODUCTS
79 W. Monroe St., Chicago 3, Ill.

PLAIN PALLETS CLEANED

IN YOUR PLANT

PALLET SERVICE CO.
R. 2—Phone 3-3271—Oxford, Ohio

We use Besser Equipment

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*Specify type.

Send to: Research Service Department

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79 West Monroe St. Chicago 3, Ill.

___Admixtures, Aggregate
___Aftercoolers, Air
___Agitators*
___Aggregates (special)*
___Air Compressors
___Air Separators
___Asphalt Mixing Plants
___Bagging Machines
___Bags*
___Barges
___Batchers
___Belting, Conveyor, Elevator, Power Transmission*
___Belt Repair Equipment
___Bin Level Indicators
___Bins and Batching Equipment
___Bits*
___Blasting Supplies
___Block Machines,* Concrete Building
___Bodies, Trailer*
___Brick Machines and Molds
___Buckets*
___Bulk Cement Handling Equipment
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___Cars, Industrial
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___Drills*
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___Dump Bodies*
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___Engineering Service, Consulting and Designing
___Explosives & Dynamite
___Fans and Blowers
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___Trucks, Mixer Body
___Trucks, Motor
___Valves
___Vibrators
___Welding and Cutting Equipment
___Winches
___Wire Rope

If equipment you are in market for is not listed above, write it in the space below.

Your Name _____ Title _____

Firm Name _____

Street _____

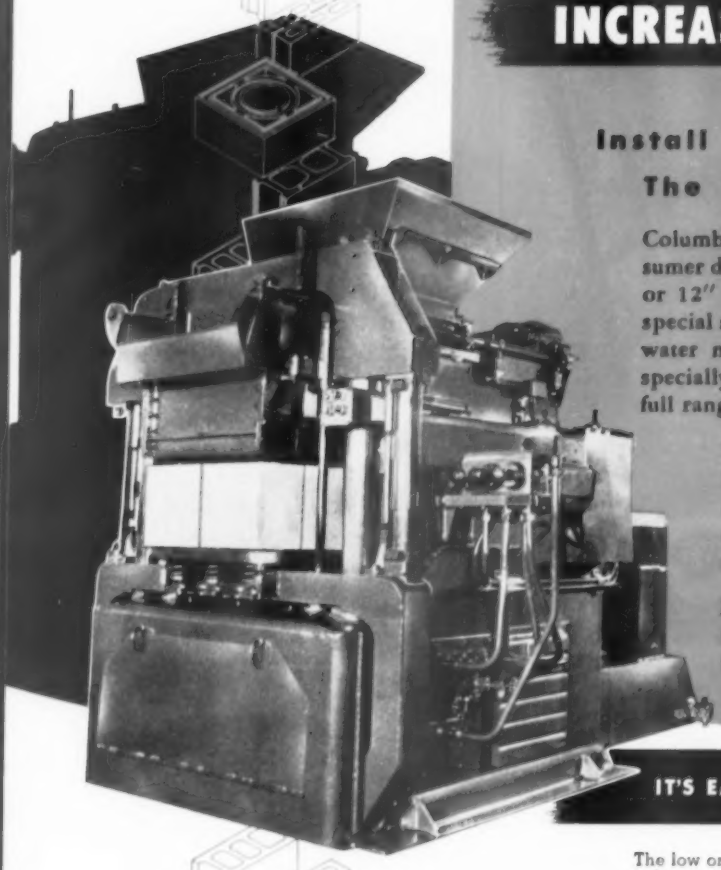
City _____ State _____

CP-5-57

EXPAND YOUR MARKET

INCREASE YOUR PROFITS!

Install a *Columbia* 12"-HIGH
The "ONE-MACHINE" Block Plant!



Columbia's exclusive 12"-High meets every consumer demand for concrete building units 4", 8" or 12" including an endless variety of popular special shapes 12" high . . . drain tile, silo staves, water meter boxes, Roman and Norman tile, specially designed face block and others . . . a full range of concrete masonry products!

The Columbia Block machine . . . hydraulically activated, electronically controlled, completely automatic . . . operates at 4 to 6 cycles per minute using standard plain pallets.

Make the most profit . . . by making the most of your market . . . with versatile Columbia 12"-High!

IT'S EASY TO OWN A *Columbia* 12"-HIGH

Among the concrete block machines on the market today, Columbia's 12"-High gives the highest production per dollar of capital invested . . . and, per square foot of plant space occupied!

The low original price represents an easily amortized capital investment.

FLEXIBLE CIT "pay as you depreciate" plan makes you the owner of this profitable piece of concrete manufacturing equipment on an easy-to-pay basis.

It you are planning a plant expansion, a new plant, or would like to add concrete block production to your present business, call us and we will have a qualified man in your plant within 24 hours. No obligation. Phone OXford 4-1501. Columbia provides everything you need for complete plant outfitting: three models of block machines: roll-aways; offbearers; cubing return; pallet returns and oilers; racks; pallets; turntables, block splitters; bins; cement silos; skip hoists; batch mixers; hydraulic pumping units.

There is a Columbia representative in your area . . . for information call, write or wire

Columbia MACHINE

HOME OFFICE: 107 S. GRAND, VANCOUVER, WASHINGTON
FACTORY BRANCH AND WAREHOUSE, MATTOON, ILLINOIS
PARTS DEPOT AND OFFICE, BURBANK, CALIFORNIA

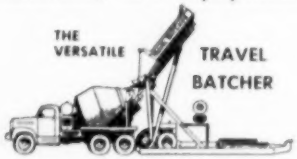
MANUFACTURERS AND WORLD WIDE DISTRIBUTORS OF A COMPLETE LINE OF PLANT EQUIPMENT FOR PRODUCTION OF CONCRETE PRODUCTS

Shown above, the Travel Batcher and Cement Silo can be set up, ready for use, in minutes.

Take your BATCHING PLANT to your "JOB SITE" with the TRAVEL BATCHER TRADEMARK TWINS

★ Have a continuous supply of quality concrete.
★ One mixer truck can do the work of many.
★ Save time, labor, materials, and equipment.

Now you can use lower cost bulk cement — save both time and money. One man, high capacity operation.



Sets up ready for batching in minutes. Production up to 100 yards per hour. Can be used as a transfer unit, a weigh batcher.

Valley Transit Cement Co., El Centro California poured 411 yards and the first 8-hour day they used a Travel Batcher and Portable Cement Silo combination and 500 yards the second day. Above: Travel Batcher units in operation. Below: the Arizona ditch lining project on which Travel Batcher "Twins" were used.

Here's a report from a typical Travel Batcher user:

"In a recent publication you state that the Travel Batcher dispensed 376½ yds. of concrete in one day. How long was the day? Our Travel Batcher, now located at Glenrock, Wyoming, has put out more than 400 yds. in less than 8 hrs. on three different occasions, and on Dec. 4th (just last week) we ran 515 yds. in 7½ hrs. This was not loading from dump truck, but the material was batched on the job from stockpile into the Travel Batcher. Top this if you can. I'll bet that it is a record for any type of portable batcher . . .

Basin Ready-Mix Concrete Co., Powell, Wyoming

Write for complete information, prices, and name of your nearest Travel Batcher representative.

Travel Batcher CORP. 6450 Holladay Blvd. Salt Lake City, Utah

Enter 1038 on Reader Card

WHERE TO BUY

GOOD USED COAL STRIPPING EQUIPMENT

5480 Marion Electric 15 yd. Shovel
1600 P&H Electric 6 yd. Shovel
2400 Lima 6 yd. Standard Shovel
88-B Bucyrus Erie 4 yd. Shovel & Drag
120-B Bucyrus Erie 4 yd. Shovel
111-M Marion 3 yd. H. L. Shovel
1201 Lima 2½ yd. H. L. Shovel
955 P&H 2½ yd. Standard Shovel
3500 Manitowoc 2 yd. H. L. Shovel
Unit 1020 ¾ yd. Shovel
625 Page Diesel Drag, 160', 9 yd.
6160 Monighan Drag, 160', 8 yd.
625 Page Diesel Drag, 150', 10 yd.
4500 Manitowoc Drag, 140', 4½ yd.
621-S Page Diesel Drag, 135', 6 yd.
7200 Marion Diesel Drag, 135', 5¾ yd.
621-S Page Diesel Drag, 125', 7½ yd.
7-W Monighan Elec. Drag, 120', 7 yd.
618 Page Diesel Drag, 120', 5 yd.
5-W Bucyrus Monighan Drag, 120', 5 yd.
2400 Lima Dragline, 110', 6 yd.
111-M Marion Diesel Drag, 80', 5 yd.
1055 P&H Dragline, 80', 3½ yd.
1201 Lima Dragline, 85', 3 yd.
955 P&H Dragline, 90', 2½ yd.
802 Lima Cranes
604 Lima Cranes
100-B Comb. Elec. Drag & Shovel
1201 Lima Comb. Shovel & Crane
51-B Bucyrus Erie Shovel & Drag
38-B Bucyrus Erie Shovel & Backhoe
4500 Manitowoc H. L. Shovel Attachment
600 Reich Heavy Truck Mounted Rotary Air Drills
McCarthy Coal Auger Drill
Mayhew Rotary Truck Mounted Air Drills
Portadrill Truck Mounted Air Drill
Euclid Trucks—Bottom & Rear Dumps
Bay City, Lorain, P&H, Northwest & Osgood Truck Cranes
Caterpillar, International & Allis-Chalmers Bulldozers.

FRANK SWABB EQUIPMENT CO., INC.
313 Hazleton Nat'l. Bank Bldg.
Hazleton, Pa. GLadstone 5-3658

SPECIAL CRUSHING-GRINDING PLANT

Hardinge ball mill 8'x26" 100 HP AC motor complete, spare new liners available
Hardinge ball mill 8'x48" 200 HP AC motor Falk reduction gear; 15 tons balls
F. S. Smidth tube mill 6'6"x21' 81lex brick lined, 350 HP 180 RPM syn. motor 17 tons Nikard steel balls, new discharge head
Pennsylvania SXT-13 hammermill 350 HP 900 RPM syn. motor, extra new shaft, discs, many spare parts. Motor rewound; prac. new condition
2 W. S. Tyler-Hummer screens 4'x10' two deck
Jeffrey vibrating feeders 2 12"x30" 3 18"x30"
Inclined skip hoist 95' centers, 70' high, bucket 120 cu. ft. 40 HP elec. AC motor
Two bucket elevators 58' high 14"x8"x8½" buckets
Inclined bucket stone elevator 126' long 14"x8"x8½" buckets; 24"x76½" steel housing
3 Williams Mdl. 278 hammermills, V-belt drive.

SHOVELS—CRANES—DRAGLINES

Northwest 6, 1½ yd., dragline-crane, 95' boom.
B-E 22B ⅝ yd. Shovel-Crane-Backhoe-Drag.
Northwest 80-D Diesel Shovel 2¼ yd. New 1952.
Lorain L-820 2-yd. Shovel-Drag-Crane 100' bm.
Buc-Erie 54-B Diesel Shovel, 2¼ yd.
Lorain Model MC 254W truckcrane 23 tons cap.
Bay City 190T61 truck crane 25 tons. Diesel.
Link-Belt H-90 truck crane 25 tons 90' alloy boom.

CRUSHERS—KILNS—DRYERS

Jaw: Acme 10x20, 15x36, 14x36, 14x28, 10x42, 16x32, 18x32, 25x40, Eagle 10x16, 20x36, Diamond 24x36", Cedar Rapids 10x20, 15x36, 20x36, 25x40, Farrell 10x20, 18x30, 14x36, 18x36, 36x48, Buchanan Type C 30x42, 36x42, Traylor 18x36, 24x36, Allis-Chalmers 30x18, Good Roads 10x30, Telsmith 18x32, Pioneer 30x42, Universal 18x24.
GYRATORY: Al-Chal 3222, 6', 7½", 8, 9, 9K, 10, 20 and 30 Telsmith 8B, 28" Intercone,; Kennedy Van Saun 7, 19, 25½-S, 37½, 38; Traylor TY 1'8", 4' Type TS, TY 3', T2 3', TZ 3'.
ROLL: Cedar Rapids 40x20, Pioneer 40x22, Pioneer 30x18, Telsmith 24x16, Universal 40x24 double.
HAMMERMILL: Jeffrey Type B3 24x20, Type H 36x24, 36x36, 36x42, Eagle 24x24, Stedman 24x30, Cedar Rapids 50-50, 30x33, Penn Model 8XR 100
BALL MILL: K.V.S. Type M 6'x8' Airswept, Marcy No. 64½, Hardinge conical 10'x48", 10'x36", 6'x22", 8'x12', 5'x7'. A-C 6'x16'.
TUBE MILLS: 5'x16', 5'x20', 5'x22', 6'x12'.
ROD MILL: Jackson & Church 4'x10' 10 ton rods, new. Marcy 3x8, 5x12, 6x12, Ruth 4'x11'.
AUTOCLAVES: Jackson & Church bolted head 50'x6' "Quick Acting" head 50'x6'6".
CONE: Symons 2' and 3' coarse bowl.
KILNS: 4'x42', 5'x30', 6'x50'6", 6'4"x45', 6'x72', Vulcan 9x100, 10'6"x105', 8'x16', 6'x90'.
DRYERS: Louisville 6'x30', 6'x50', others 4'6"x40', 7'x80', 6'x30' complete with motor. NEW.
COMPEB MILLS: A-C 7'x24' with motor drive.

CRUSHING PLANTS

Cedar-Rapids AA-2225 primary port. Diesel.
Cedar-Rapids 3033 hammermill Diesel. Trailer mtd.
Eagle washing plant, classifier sand screws, screen.
Pioneer 150 Primary 2036 Cat D8800 Diesel.
Pioneer Port. 3042 **New** 1955 **Never used.**
Austin-Western 101 Port. Diesel.
Pioneer Duplex Prim. 936 AFB Second. 2040 rolls.
Aus-West. 2540 Port. Primary.
Pioneer Port. 11x36 jaw, 40x36 rolls.
Pioneer 24V Gravel Plant.
Amer. Good Roads 15x30, Diesel. Complete.
Universal 20x36 jaw, 30"x18" roll, plant complete.

CONCRETE PLANTS AND EQUIPMENT

Blaw-Knox 4180 3 compt. aggr. 1 cement 400 bbls.
Erie Strayer port. concrete mix plant 25 yds. per hr.
Blaw-Knox BCPC-400 HI cement bin. Complete.
Butler 600 bbl cement bin. All equipment.
Noble CA-245, complete plant, almost new.
Johnson 135 yd. 4 compt. 150 bbls cement, 750 bbls silo U.S. Corps Engrs. automatic.
Johnson 200 ton automatic 3 compt. aggr. with Heltzel 400 bbl. cement 797 cement silo.
Johnson 150 yd. 5 compt. aggr. 870 bbl. cement bin.
John. 6-cpt., 600-T Ag., C 300-bbl., 8flo 600-bbl.
Mixermobile 2 yd. 45' tower. Extension to 155'.
Cement bin 250 bbls overhead storage with 375 bbls cement recirculator ground storage silo
Fuller Kinyon Type C 8" cement unloader.
Burmeister 175 tons 3 cpt. 2-475 bbls cement bins.
Rex 180, 190, 200 Pumpcretes, complete.

SAND AND GRAVEL HYDRAULIC DREDGES

Morris 16"x14". Portable. Electric.
10" Portable Diesel powered. Complete.
12" Diesel powered, pontoon mounted. Complete.
Ellicott 8" with cutter. Diesel Hull 48'x18'x3'6".
8" Hydraulic Diesel. On 32'x8' steel pontoons.
Amsco 10" Diesel power portable. Excellent.
6" portable Diesel complete with cutters, etc.
8" H&H twin Diesel drive. Complete.

SCREENS

Tyler F-360 4'x12' 2 deck w/spray bars.
Trommel 6'x15' 75 H.P. elec. motor.
Kennedy Van Saun 3'x10' 3 deck.
Tyler-Niagara 3 deck 7½ H.P. A.C. motor.
New Holland 4'x12' 4 deck.
Telsmith 5'x12' dbl. deck elec. motor.

RICHARD P. WALSH CO.
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BUCYRUS ERIE 7-W DRAGLINE, 110' boom, 2 yd.
B. E. 120-B electric shovel, 5 yd.
88-B shovel and 88-B shovel-dragline, 4 yd.
P&H 855 1055 shovels and draglines.
American Revolver R-20, 4' & 7' Symons cones.
8166 **JAW CRUSHER,** 4022 Pioneer triple roll.
5360 C. R. Impactor, 4100 ft. 42" conveyor.
CRUSHING PLANT in the Southeast, 42 x 48 r.b. Jaw, 4¼' Symons, 3' Traylor, Compressors, Shovels, Conveyors, Screens, Feeders, Trucks. All types of crushing & washing equipment. Bins—Bucket Elevators—Classifiers—Compressors—Conveyors—Cranes—Derricks—Drills—Dump Cars—Engines—Feeders—Generators—Hoists—Kilns & Dryers—Locomotives—Motors—Pumps—Screens—Shovels & Draglines—Transformers—Trucks—Weightometers.

Stanley B. Troyer Equipment Co.
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QUARRY EQUIPMENT

Cedarapids 2540 jaw only.
Cedarapids 1036-2416 Junior tandem. Rebuilt.
36" x 12' apron feeder, also 36" x 4'6".
Cedarapids single pass plant with 1024 jaw.
36" x 4'6" Apron Feeder.
Williams 20" x 33" pulverizer.
Cedarapids 4' x 12' and 4' x 14' double deck screens.
12" x 35' inclined open elevator. New.
Seco 3' x 10' triple deck screen. Reconditioned.
Pioneer 4' x 8' double deck screen.
27½ ton, single-compartment, 8' x 12' bin.
60-ton, two-compartment, 8' x 18' storage bin with clam gates.
100-ton, two-compartment, 13' x 23' bin.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also conveyor belting.
18" diameter x 20" face magnetic pulley.

SHOVELS AND CRANES

P&H 855 2-yard diesel powered shovel-drag.
P&H 855B diesel powered drag, long crawlers.
Bucyrus-Erie 38B, 1½-yard diesel powered dragline.
Koehring 304, ¾-yard diesel powered clam-crane-hoe.
General ¾-yard gasoline powered crane-shovel-hoe.
Northwest 25, ¾-yard diesel powered crane-drag.
Link Belt LS-85 ¾-yard diesel powered shovel-drag.
Lima 34 Paymaster ¾-yard diesel shovel. Good.
Unit 1020 ¾-yard diesel powered shovel-crane.
Lorain TL25-S ¾-yard gas powered backhoe.
Lorain L-40 ¾-yard diesel powered clam-crane-drag.
Lorain TL-20 diesel powered backhoe.
Insley K-12, ½-yard gasoline powered backhoe.
Link Belt LS-50 backhoe, gas power.
Lorain MC-504-W crane clam. Reconditioned.
Lorain MC-414, 20-ton truck crane.
Lorain 40 clam-crane on 6 x 6 White.
Lorain SP-110 self-propelled crane.
Michigan T6-K Truck Crane 35' boom.

TRACTORS, TRUCKS, SCRAPERS, ETC.

1—Euclid 18-yard twin engine scraper. Very good condition.
1—Euclid 15 5-yard scraper. Excellent condition.
1—Euclid 7-yard overhung engine scraper.
1—Euclid 27FD rear dump, 2-yard top extensions.
7—Euclid 13-yard bottom dumps.
2—Euclid tractors with 3200 gallon water tank semi-trailer.
1—Euclid Model 3 BV loader.
2—Caterpillar DW-10 scrapers.
1—Caterpillar DW-10 with Athey side dump.
1—Allis Chalmers HD-10 tractor with hydraulic bulldozer blade.
1—International TD9 crawler tractor.
1—International TD18 with Bucyrus-Erie bulldozer blade. Excellent condition.
1—Caterpillar D-7 with cable bulldozer blade, winch.
1—Caterpillar D-8 with cable bulldozer blade.
1—Austin-Western diesel powered grader.

DIESEL POWER UNITS

Cat. D7700, 74 H.P. at 1000 RPM. Rebuilt.
Cat. D13000, 145 H.P. at 1000 RPM. Rebuilt.
GMC Twin Diesel, rebuilt.
GMC 3021C, 3-cylinder, new.
GMC 371RC, 3-cylinder. Rebuilt.

ASPHALT PLANT

Barber-Greene 848 Model with drier, gradation unit, etc.

AIR COMPRESSORS

105 cu. ft. Ingersoll-Rand gas portable.
500 cu. ft Gardner-Denver diesel portable.
600 cu. ft. Gardner-Denver diesel portable.
500 cu. ft. Ingersoll-Rand, Waukesha power.
420 cu. ft. Gardner-Denver two-stage stationary. Rebuilt.

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ROTARY DRYERS & KILNS: 4'6" x 40'; 6'6" x 32'; 8'6" x 25', 8' x 24'.

ROTARY COOLERS: 104" x 30'; 104" x 70'. Submerged Type

INGERSOLL RAND AIR COMPRESSOR, type ES-1 Size 12 x 11 with 60 HP motor.

PATTERSON BALL TUBE MILL, 5' x 22', 200 HP UNUSED.

AL. CH. 6' x 16' BALL TUBE MILL 30 HP.

JAW CRUSHER: 8" x 10".

WE WILL PAY CASH FOR GOOD USED EQUIPMENT

PERRY EQUIPMENT CORP.
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STevenson 4-3505

ALSO SEE READY-MIXED CONCRETE AND CONCRETE PRODUCTS EQUIPMENT
WHERE TO BUY ADVERTISING IN CONCRETE PRODUCTS SECTION

AGGREGATE PLANTS: Two complete modern Aggregate Plants with all necessary auxiliary equipment.

BATCHING PLANT: 3 compartment Bins 200 ton capacity, 100 bbl. cement compartment, Bucket Elevator, Cement Screw, 1200 bbl. Cement Bin, complete with motors, etc.

BINS: 100 ton capacity, 3 compartment, 3 gates, for truck loading.

BRIDGES: Deck Girder Type—2 Girders each, 44', 54', 65' and 75'.

CAR PULLER: Stephens-Adamson continuous wire rope Car Puller, 20 HP., 440 volt, heavy duty type.

LOCOMOTIVES: 45 ton, standard gauge, saddle tank fireless, steam. Two 5 ton, standard gauge, with geared Caterpillar units.

OVERHEAD ELECTRIC TRAVELING CRANES: Two 25 ton, 56' span. One 10 ton and one 20 ton, 56' span, 3 motor, cage control, 250 volt, DC.

TRUCK CRANE: Lorain T20 complete with crane boom, shovel front and backhoe.

SHOVEL: Bucyrus Erie 54-B, 2½ yd., diesel.

DRAGLINE: P&H model 955, 2½ yd., 90' boom.

CLAM SHELL BUCKET: Williams 1¼ yd. capacity. Excellent condition.

TRACKMOBILE: Whiting type TM322, standard gauge.

CONVEYORS: 60" x 170' and 60" x 300' complete.

SAND SCREW: 24" x 25' with steel box.

ROD MILL: 4' x 8' wet grinding peripheral discharge with 50 H. P. motor and control. NEW condition.

JAW CRUSHERS: 10 x 15, 10 x 20, 12 x 24, 15 x 36, 18 x 36, 24 x 36, 25 x 40, 30 x42, 40 x 42, 42 x 48.

GYRATORY & REDUCTION CRUSHERS: All sizes.

PORTABLE CRUSHING PLANT: Diamond model 66, diesel powered.

WE BUY AND SELL EQUIPMENT THROUGHOUT NORTH AND CENTRAL AMERICA

A. J. O'NEILL
LANSDOWNE, PA.
Phila. Phones: MAdison 3-8300—3-8301

SPECIALS

1—New 6½' x 150' Kiln
1—28" Telsmith Intercone Crusher.
1—10½ Clyde hydrator.

KILNS

1—10½' x 200'.

DRYERS

6' x 60'

CRUSHERS

1—24" x 36", 18" x 36", 15" x 30", 12" x 24" Jaw Crushers.
2—42" x 16" Allis-Chalmers Crushing Rolls, rebuilt. 36" x 16 rebuilt Sturtevant rolls.
2—24" x 14" Rogers Iron Works Crushing Rolls, Rebuilt.
1—24" x 12" Farrell Bacon Crushing Rolls.
1—6", 10", 16", 20" McCully Superior Gyratory Crushers.
No. 3 up to No. 12 Gyratory Crushers.

BALL, ROD & TUBE MILLS

2—5½' x 20', 5' x 22' & 6' x 22' & 7' x 24' Tube Mills.

MISCELLANEOUS

1—8' x 10' Rotary Filter.

We make new dryers and kilns.

Have you any machinery that you want to sell?

W. P. HEINEKEN, INC.
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FOR SALE

CONVEYOR & ELEVATOR BELT

125' x 60" used conveyor belt
92' x 54" almost new conveyor belt
240' x 42" new conveyor belt
57' x 36" almost new conveyor belt
240' x 30" used conveyor belt
400' x 30" used conveyor belt
150' x 24" new conveyor belt
120' x 24" almost new conveyor belt
485' x 24" rough top package belt
280' x 14" almost new conveyor belt
443' x 16" 7 ply new elevator belt
355' x 16" 6 ply almost new elev. belt
487' x 12" rough top used belt
2000'—8" to 14" transmission belt, almost new.

WANTED

Gearmotors 3 to 15 H. P.
Jaw crushers, all sizes.
Late model vibrating screens.
Good used trough idlers 18" & 24".
Any Amount.

G. A. UNVERZAGT & SONS INC.
136 Coit Street, Irvington 11, N.J.

FREE SERVICE for Buyers

Get information and prices quickly on machinery, equipment. Check item (or items) about which you desire information. Send to us.

*Specify type.

Send to: Research Service Department

ROCK PRODUCTS
79 West Monroe St. Chicago 3, Ill.

- ___Admixtures, Aggregate
- ___Aftercoolers, Air
- ___Agitators*
- ___Aggregates (special)*
- ___Air Compressors
- ___Air Separators
- ___Asphalt Mixing Plants
- ___Bagging Machines
- ___Bags*
- ___Barges
- ___Batchers
- ___Belting, Conveyor, Elevator, Power Transmission*
- ___Belt Repair Equipment
- ___Bin Level Indicators
- ___Bins and Batching Equipment
- ___Bits*
- ___Blasting Supplies
- ___Block Machines,* Concrete Building
- ___Bodies, Trailer*
- ___Brick Machines and Molds
- ___Buckets*
- ___Bulk Cement Handling Equipment
- ___Bulldozers
- ___Cars, Industrial
- ___Central Mixing Plants
- ___Classifiers
- ___Clutches
- ___Coal Pulverizing Equipment
- ___Concentrating Tables
- ___Concrete Forms
- ___Concrete Mixers*
- ___Concrete Mixing Plants
- ___Concrete Specialty Molds
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- ___Draglines
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- ___Tractors*
- ___Trailer Dump Bodies
- ___Trucks, Bulk Cement
- ___Trucks, Industrial
- ___Trucks, Mixer Body
- ___Trucks, Motor
- ___Valves
- ___Vibrators
- ___Welding and Cutting Equipment
- ___Winches
- ___Wire Rope

If equipment you are in market for is not listed above, write it in the space below.

_____

_____

_____

Your Name_____Title_____

Firm Name_____

Street_____

City_____State_____

RP-5-57

ALSO SEE READY-MIXED CONCRETE AND CONCRETE PRODUCTS EQUIPMENT WHERE TO BUY ADVERTISING IN CONCRETE PRODUCTS SECTION

FOR SALE

1—53x60 heavy-duty, double-impeller, Iowa Mfg. impact breaker, complete with 50"x14' 6" heavy-duty cast manganese feeder. Used 7 months.

2—42" conveyors. One conveyor 155' long; the other 160' long. Used 7 months.

1—McCully gyratory crusher #11

1—Marion electric shovel, Model 6RS.

Numerous other units, including ½-yard to 2½-yard shovels; Murphy & GMC power units, & generator sets. Screens, jaw crushers, rolls, bucket elevators, etc. Some units mounted on rubber-tired chassis.

Write for complete list and prices to:

CONCRETE MATERIALS & CONSTRUCTION CO.

P.O. Box 790, Cedar Rapids, Iowa

LIQUIDATION

1—Allis Chalmers 7' x 60' direct heat Rotary Dryer.

1—Christie 70" x 40' indirect heat Rotary Dryer.

4—Bartlett & Snow 8½' x 35', 7' x 30', 6' x 30' direct heat Rotary Dryers complete with feeders, blowers, motors, 304 S.S. Clad 17' from feed end.

1—Patterson 7' x 18' Two-Compartment Compeb Mill, 400 HP motor.

1—Raymond 16' dia. single whizzer Mechanical Air Separator with 50 HP motor.

1—Raymond 12' dia. double whizzer Mechanical Air Separator with 30 HP motor.

3—Tyler Hummer 3' x 15', Type 38 single deck Screens with Thermionic units.

5—Bartlett & Snow totally enclosed Bucket Elevators 28' x 55' centers, 8" x 5" buckets, motor driven.

1—Link Belt totally enclosed Bucket Elevator 51' centers, 14" x 7" buckets, motor driven.

150' Screw Conveyor 14" and 18" dia. with steel troughs and covers.

1—Rectangular Two-Compartment Bin 22'8" long x 20'6" wide x 18' deep.

Your Inspection Invited
Wire! 'Phone! Write!

BRILL EQUIPMENT COMPANY

2401 Third Ave., New York 51, N.Y.

or

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CLEARANCE SALE
QUALITY USED CONSTRUCTION EQUIPMENT

DIESEL TRACTORS

3—Caterpillar D8 Tractors—2U Series
8—Caterpillar D7 Tractors—17A, 3T and 9G Series
7—Caterpillar D6 Tractors—9U, 8U and 2H Series

MOTOR GRADERS

4—Caterpillar No. 12 Motor Graders—8T and 9K Series
1—Adams 412 Motor Grader
1—A.C. Model AD4 Motor Grader

SCRAPERS

3—Caterpillar No. 80 Scrapers
2—LaPlant—Choate Model 314
1—LeTourneau Model LP

DRAGLINES—SHOVELS

1—Unit Model 514 Shovel—½ cu. yd. bucket
1—Link-Belt Speeder LS51 Dragline—½ cu. yd. bucket
1—P&H Model 255A Shovel—3/4 cu. yd. bucket
1—Link-Belt Speeder LS85 Shovel—3/4 cu. yd. bucket
1—Koehring Shovel Attachment with ⅝ cu. yd. bucket to fit Model 251 machine—cheap
1—Bucyrus-Erie Dragline attachment complete with fairlead for 10B machine "Brand New" —Big discount.

MISCELLANEOUS EQUIPMENT

1— Caterpillar D337 Electric Set
1—Caterpillar D337-F Series, with direct connected Peerless 8" Model TU16 Pump equipped with primer. Pump rated at 2200 GPM at 353 ft. head. All mounted on heavy duty two-wheel trailer. New condition. Big discount.
1—I.H.C. Model UD18A Engine.
1—I.H.C. Model UD24A Engine.
1—Iowa 10 x 36 Jaw Crusher
A good selection of screens from 2 x 6 single deck to 4 x 14 triple deck.

Write, wire, call or come and see us. Our prices are really right for good quality equipment. Some rebuilt and some "As Is", to fit your needs.

"You know your're safe when you deal with Gibbs-Cook"

Gibbs-Cook Equipment Co.

1314 Walnut, Des Moines, Iowa

325 North Jackson, Mason City, Iowa

3029 5th Ave. South, Fort Dodge, Iowa

CLASSIFIERS
Dorr 26' dia bowl with rakes.
Telsmith 36" x 25' sand drag.

COLLECTORS Ducon Wet and Ducon Dry. Both have 10,000 CFM capacity.

PAN CONVEYORS Rex 36" x 54'.
Link-Belt 30" x 33'.

DRAG CONVEYOR 80' centers with 15 x 5" cast flights on #730 chain.

ELEVATOR Open inclined 90' centers with 15 x 14 buckets.

FEEDERS 24" x 10'6" Jeffrey apron and 24" x 18' pan feeder.

GRIZZLY ROLLS Frame contains six 12" dia x 36" ribbed live rollers.

HAMMERMILL Pennsylvania S-6.

PUG MILL Chambers 30" x 14'7".

SCREENS 4' x 6'6" Dble Deck Gyrex.
60" x 84" Model 421 Rotex.

SEPARATOR Dings Magnetic Cross-belt.

ELECTRIC MOTORS 26 from 3 HP to 75 HP. 440 Volt, 3 phase, 60 cycle.

G. & W. H. Corson, Inc.

PLYMOUTH MEETING, PA.

FOR SALE

3—10" Superior McCully Crushers
1—New RCA metal detector—10" x 36" Aperture
1—Fuller-Kinyon System
1—Allis Chalmers Compeb Mill (For pulverizing limestone for agricultural lime or asphalt filler)
1—Covered steel barge (suitable for cement, etc.)
1—6' x 60' Vulcan Dryer Complete
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EQUIPMENT WANTED

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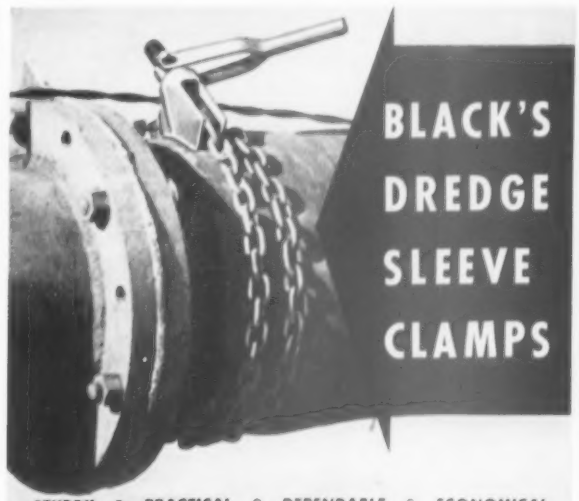

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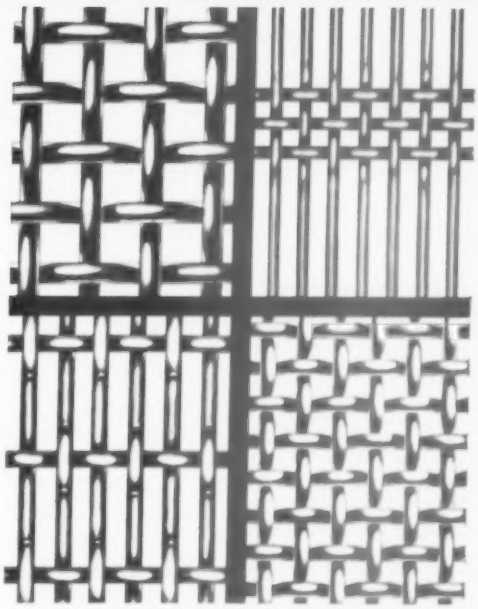

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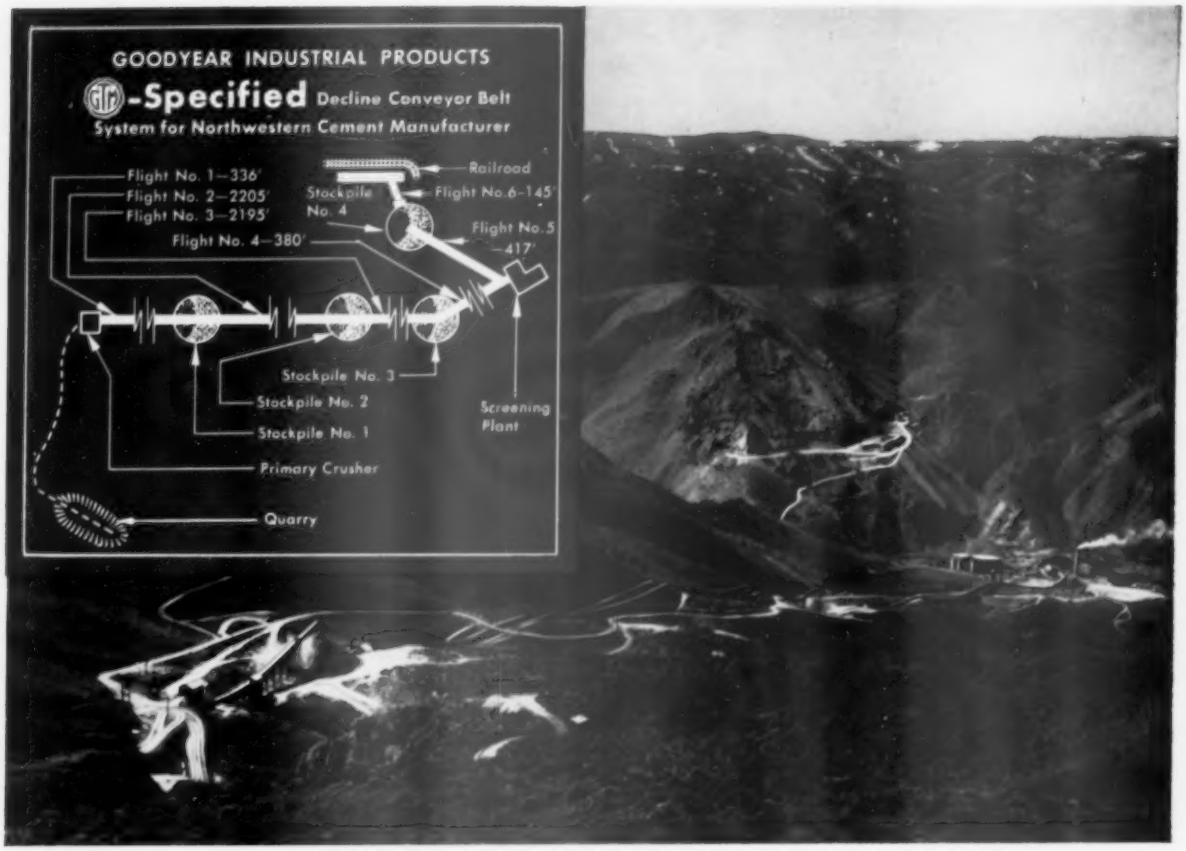

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